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It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal  
Measurement of Extrinsic Motivation Among Primary School Pupils

It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal  
Measurement of Extrinsic Motivation Among Primary School Pupils

Goh Boon Yeow

A Thesis Submitted in Partial Fulfillment  
of the Requirement for the Degree of  
Doctor in Education

School of Education  
University of Durham

2016

It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal  
Measurement of Extrinsic Motivation Among Primary School Pupils

DECLARATION

I declare that this thesis represents my work and it has not been submitted to this or any other institution in application for admission to a degree, diploma or any other institution.

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ABSTRACT

Studies of Singapore's education system have largely focused on the challenges the system faces in terms of ability-driven education and various educational policies. Some studies have focused on creativity and innovation in teaching, national education and teachers' professional development. However, few studies have considered exploring student motivation.

Motivation is an important aspect in the field of education. Knowledge of student motivation may help teachers optimise the learning experience and thereby foster a lifelong enjoyment of learning in their students. If a student's level of motivation can be measured early on in his or her primary years of education, it may provide insight into how it affects his or her learning.

Using organismic integration theory, which is a branch of self-determination theory, as its theoretical background, this study measured the shift in motivation as students progressed through their primary school years. It specifically measured the shifts in external, introjected, identified and integrated regulations of 179 students at a primary school in Singapore over three years.

The students were asked to complete a set of self-regulation questionnaires adopted from a study by Ryan et al. (1989) to measure the shift in their external, introjected, identified and integrated regulations as they moved from Primary 3 to 5.

The results of the study revealed a significant shift in the students' external, introjected and integrated regulations albeit with a small effect size. However, no significant shift was found for the students' identified regulations, and the effect sizes for both measures were small.

Although the students' needs for reward and self-worth decreased as they went through their primary school years, the importance they placed on their schoolwork and their integration of these needs into a self-determined extrinsic motivation remained relatively unchanged over the years. The implications of these results for classroom teaching are discussed in detail.

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## Chapter 1 Introductory Chapter

### 1.1 Introduction

studies of Singapore's education system have largely focused on creativity and innovation in teaching, national education and teachers' professional development. Few studies have focused on exploring the motivation of students at the primary school level (Yeung, Lau and Nie, 2011; Liu, Wang and Parkins, 2005; Lim and Chai, 2004) and no studies have sought to measure the changes in the motivation of pupils as they progress through their primary school years. The dearth in research in the motivation of primary school children could have been influenced by the education policies Singapore has adopted since its self-government in 1959.

Due to the need to meet the economic challenges and social upheavals Singapore faced in 1959, the Singapore government started its education policy of adopting a survival driven education policy (Goh and Gopinathan, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008). Though this policy enabled thousands of students to be trained to meet the challenges of Singapore's economic needs throughout the 1970's, flaws within the policy were evident. The existence of flaws in the survival driven education policy led to the establishment of a new policy where education was no longer used just to complement the industrialisation of Singapore instead, it was used to complement the economic growth of both the manufacturing and service industries of Singapore (Ng, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008). The new policy, the New Education System, saw students being streamed into various academic streams in their secondary years. The academic stream allowed students to be trained according to their academic abilities to complement the manufacturing and service industries which was driving the economic growth of Singapore in the 1980's (Goh Report, 1979).

However the economic downturn of Singapore in the mid 80's led to a review of the New Education System. In place of the New Education System was a policy that sought to improve the education system as a whole and to align it with the economic policy of Singapore which emphasised the enhancement of the population's education and training to its fullest potential. This policy, known as 'Towards Excellence in Education' overhauled the way in which schools were managed especially in the primary school arena. To complement the policy of 'Towards Excellence in Education' further, the Improved Primary School

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Education System was established in 1991 to restructure the pedagogical framework of primary schools to ensure an inclusive education for all primary school going children regardless of their academic abilities (Jason, Gopinathan and Ho, 1997).

In ensuring that the educational infrastructure continues to support productivity in both the manufacturing and service sector of its economy in the changing political and economic scenario of the world and hence Singapore, the policy of 'Thinking Schools, Learning Nation' was introduced in 2000. This policy saw a number of initiatives especially at the primary level to improve the quality of primary school education and improve the creativity and innovation of primary school children. This is in the hope that primary school children will grow up to support the future economy of Singapore through innovation and creativity in the workplace (Jason and Ng, 2008).

The educational policy of Singapore has, over the years since its internal self-government, has placed heavy emphasis on aligning itself to complement her economic policy. The emphasis on equipping students with skills, innovation and creativity has left the comprehension of the motivation of students towards their study relatively unconsidered. Though many studies have pointed out the link between creativity and motivation and that students' motivation decline throughout their years in school, the research into the area of motivation of students especially at the primary school is largely unconsidered. However knowledge about the motivation of students at the primary school level especially on how it shifts as they progress through their primary school years may help change the educational policy and improve the pedagogical creativity of teachers in the classroom. Improvement in pedagogical creativity can help sustain children's motivation towards their studies, enabling them to become lifelong learners and hence complementing the economic policy of Singapore further. Hence this thesis aims to measure the shift in motivation of primary school children as they progress through their primary school years.

This thesis starts off in Chapter 1 outlining the education policy of Singapore from 1959 to 2015 and the aim of the study. In Chapter 2, the thesis explores Self Determination Theory, which forms the theoretical background for the study. The thesis then continues into the next chapter, Chapter 3, where it explores the various literatures which lead to the formation of the research questions and hypothesis for the study. This is then followed by the next chapter, Chapter 4, which gives a detailed explanation of how the study was conducted. The results of the study are presented in Chapter 5. The final chapter, Chapter

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6, gives a detailed explanation of the results of the study. The chapter will also explore the limitations of the study and the topics which future research should explore.

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## 1.2 Outline of Singapore's Primary School Education Policy

### 1.2.1 Survival-Driven Education Policy

When Singapore gained internal self-government in 1959, it faced the challenge of creating a cohesive and robust sense of nationhood and economic growth (Gopinathan, 2014). As a country with no natural resources except its strategic location and human resources, Singapore has depended on making itself useful to major powers to survive (Gopinathan, 2001, as cited in Jason, Gopinathan and Ho, 2001). Faced with social upheavals and a lack of capability to meet economic challenges, the Singaporean government adopted a survival-driven education policy. This policy was designed to promote social cohesion and produce a workforce through strategic skills formation (Goh and Gopinathan, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008). It was formulated based on the White Paper of 1956 and had the following aims:

- i. equal treatment of the Malay, Chinese, Tamil and English language streams;
- ii. the establishment of four official languages, with Malay as the new national language, in an attempt to unify the multicultural community;
- iii. an emphasis on the study of Mathematics, Science and technical subjects designed to equip the youth with the requisite skills, aptitudes and attitudes for employment in the industrial sector; and
- iv. the establishment of loyalty to the nation (Goh Report, 1979, p. 2-1).

In its firm belief that the country's wealth and future prosperity lay in its population, the Singaporean government set about implementing this education policy to develop its human resources to the fullest possible extent. In doing so, it embarked on a school-building programme and large-scale training of teachers. In addition, the government gave equal treatment to all of the language streams. A common education system with a common curriculum that took no account of students' abilities was established. This system allowed students of school-going age to have six years of primary education, four years of secondary education and two years of pre-university education. After the pre-university education, students proceeded on to university studies (Goh Report, 1979).

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The education policy also set about assessing students' abilities in English, their first language, Mathematics and Science based on a meritocratic system. Under this assessment system, up to 10% of the students at each level (except Primary 1 and Secondary 1 and 4) of each school could be retained at their current level upon failing their year-end examinations. This retention allowed weaker students an extra year to remedy their deficiencies. In addition, the assessment system institutionalised the Primary School Leaving Examination (PSLE) for all Primary 6 students to assess their suitability to be promoted to secondary schools (ibid., 1979).

To promote national cohesion, the education policy also instituted flag-raising and pledge-taking ceremonies in all of the schools. To foster inter-school activities across the different language streams, schools with two or more language streams were housed in a single building under a common principal. Furthermore, the study of Civics was compulsory, and bilingualism was introduced and subsequently made compulsory. Because technical skills were required to attract foreign investments to enhance economic growth, vocational and technical education was introduced in all of the secondary schools. Vocational and technical institutions such as Singapore Polytechnic and Ngee Ann College were also established. These technical institutions were open to enrolment from students who had completed either their primary or secondary education (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997). The dynamic and vigorous pursuit of the educational policy laid out in 1959 led to rapid school construction, increased student enrolment and massive teacher employment. By 1965, Singapore's education system seemed ready to move to a higher level of development (ibid., 1997).

From 1959 to 1965, Singapore's education policy emphasised nation building and complementing the country's developing economic infrastructure. The policy did not account for students' motivation towards education. Studies have shown that students with a more self-determined form of motivation have a lower risk of dropping out of school (Vallerand et al., 1997; Otis, Grouzet and Pelletier, 2005; Hardre and Reeve, 2003). The dropout issue plagued Singapore's education system at the primary school level from 1965 to the early 1980s. Aside from the lack of studies of educational motivation, research focusing on education in Singapore was not established until the creation of the Advisory Committee on Curriculum Development in 1969 and the Institute of Education in 1973. Even after these research bodies were established, little attention was paid to the nature and purpose of



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education and the intrinsic worth of what was being taught (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

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### 1.2.2 The Revised Primary and Secondary Education System

In 1965, Singapore witnessed the end of its merger with Malaysia, transforming it from a state into a nation (Government Gazette Extraordinary, 1965, as cited in International Legal Materials, 1963). This transformation necessitated a new capacity for Singapore to survive politically, economically and socially. The Singapore government realised that its education priority was to consolidate and strengthen all of the quantitative efforts it had begun in 1959. Hence, it began emphasising a shift in its education policy towards qualitative consolidation (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

There was also a shift in emphasis from academic to technical education (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997). This shift was the result of a need for manpower to support the industrialisation drive that dominated Singapore's economic policy during its post-independent years. All of the students, except for 50% of the girls, had to receive both academic and technical education at Secondary 1 and 2 levels. The Revised Primary Education System was established in 1976 to cater to the needs of less academically inclined students at the primary school level. Furthermore, the Revised Secondary Education System was introduced in 1978 for the less academically inclined secondary school students. Under this system, any student who failed and was retained twice at the primary school level was transferred to the Basic Course. Upon completion of the Basic Course, students either sought employment as unskilled workers or continued their education under the Junior Trainee Scheme run by the Vocational and Industrial Training Board. Under this scheme, students received on-the-job training and enrolled on the part-time Extension Education Programme to consolidate their literacy and numeracy. As for the Revised Secondary Education Scheme, any student who failed at any secondary school level twice was channelled into vocational courses conducted by the Vocational and Industrial Training Board. Once in those vocational courses, students were trained in courses that led to certification at the artisan, trade or technician levels or account clerk certification (Goh Report, 1979).

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### 1.2.3 The Goh Report

Although Singapore's survival-driven education policy shaped the education system to support the economic needs of the 1960s and 1970s, the system began to show weaknesses in the late 1970s. The Goh Report (1979), a study of the problems faced by the education system, was spearheaded by the late Deputy Prime Minister Dr Goh Keng Swee at the request of then Prime Minister Mr Lee Kuan Yew. The report highlighted three major weaknesses in Singapore's education system: education wastage, low literacy levels and ineffective bilingualism (Goh Report, 1979). It stated that education wastage was apparent in the system due to its failure to achieve the expected standards, students leaving school prematurely, students' repetition of grades and the unemployability of dropouts (ibid., 1979). According to the report, out of 1,000 students who entered Primary 1, an average of 206 students dropped out of school 9 years later without acquiring any useful qualifications or skills (Goh and Gopinathan, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008). The number of students who dropped out of the education system was significant, as about 355,000 children had entered Primary 1 in 1965 (ibid., 2008). About 73,000 students in 1974 failed to acquire any useful qualifications or skills, resulting in the national economy experiencing a shortfall of 73,000 workers when those students reached employable age. This had dire effects on the growing economy, which required a huge number of skilled workers.

The Goh Report also addressed the low literacy levels in the education system. According to the report, there were no established means to measure the literacy levels of students at the various primary levels. The PSLEs that the students took at the end of Primary 6 were merely achievement tests and by no means informative of the students' literacy at any primary level. In 1975, the Ministry of Education conducted two surveys to assess students' basic numeracy and literacy skills and their abilities to follow oral and written instructions at Primary 4. The results of the surveys revealed that at least 25% of the Primary 6 population did not meet the minimum numeracy level and that 60% of students showed poor proficiency in their use of the English language (Goh Report, 1979).

In addition to the students' low literacy rates, the Goh Report found ineffective bilingualism to be a weakness of Singapore's education system and policy. From 1975 to 1977, over 62% of the students who sat for the PSLE failed their first-language examination. Furthermore, 66% of the students who sat for the General Certificate of Education (GCE) 'O'

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level examination failed the first-language portion. In addition, the number of students able to read both Chinese and English newspapers remained low. The findings also revealed that language exposure time was not the sole determining factor in language learning. Hence, the education policy of bilingualism was ineffective (Goh Report, 1979).

In addition to the three major weaknesses that directly affected students, the Goh Report highlighted low teacher morale as a weakness. This issue was extensively discussed with the teachers, and the factors contributing to the low morale were found to be low social status, frequent changes to the education system, an ineffective supervision system, a lack of guidance from school principals and poor promotion prospects (*ibid.*, 1979).

The report made several recommendations to improve the education system with the aim of decreasing dropout rates. First, it recommended that the first three years of primary schooling concentrate on language learning. This was recommended in the hope that students would gain a strong linguistic foundation for learning content such as Science and Mathematics (*ibid.*, 1979).

The report then recommended that streaming be introduced after three or four years of primary schooling. The academic standing of students would be determined according to the streaming examinations taken at the Primary 3 level. According to the streaming process, students who had gone through three years of primary school education without repeating any year would be channelled into the normal bilingual stream, where they would complete their education in six years. Students who were academically weaker and failed their streaming examinations but were deemed able to pass their PSLEs would be channelled into the extended bilingual stream and given an additional one or two years of primary schooling, allowing them to work at a slower pace. These students would still take their PSLEs, but would do so one or two years after the students in the normal bilingual stream. The students who were not academically inclined according to examinations and intelligence tests would be channelled into a monolingual stream. In this stream, the curriculum would concentrate on language and basic numeracy with the objective of allowing the students to speak, read and write and undertake training in a skill or a trade at the Vocational and Industrial Training Board (*ibid.*, 1979).

At the secondary school level, academically stronger students would be allowed to study English and their first language at a standard level and proceed to the GCE 'O' and

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hence the GCE 'A' pre-university levels. These students would then proceed on to university studies. They would even be permitted to attend a polytechnic school if they wished. The academically weaker students who did not perform well at the GCE 'O' level and were not likely to proceed on to the GCE 'A' level and university studies would be channelled into an ordinary stream where they would study a second language at a lower level. These students would complete their secondary schooling in five years instead of four. In the fourth year of their secondary schooling, these students would take a Certificate of Secondary School Examination, a qualification lower than the GCE 'O' level examination. If the students performed well on the Certificate of Secondary School Examination, they would proceed on to the GCE 'O' level examination in the fifth year of their studies. Once they completed their GCE 'O' level examinations, they would either proceed on to a polytechnic school to further their studies or seek employment. The Certificate of Secondary Examination aimed to provide students who could not succeed at the GCE 'O' level with a lower qualification that would allow them to seek employment (ibid., 1979).

In addition, the report recommended lateral transfers of students at both the primary and secondary levels. At the primary level, students who performed well on their examinations in the extended bilingual stream could be promoted to the normal bilingual stream. Those in the monolingual stream could be promoted to the extended bilingual stream. However, students who failed in the normal and the extended bilingual streams would be transferred to the extended and monolingual streams, respectively. At the secondary level, students in the ordinary streams who achieved good results could be transferred to the normal bilingual streams, and students who failed in the normal bilingual streams would be channelled into the ordinary stream (ibid., 1979).

As for the issue of low teacher morale, the report recommended that teachers be given opportunities to upgrade themselves academically. In addition, it encouraged teachers to air their views about problem areas in their work and suggest improvements through a staff suggestion scheme. It also recommended that the public image of teachers be enhanced through the publication of a magazine like that published by the Singapore Armed Forces. Finally, the report recommended that the Director of Education brief school principals and selected teachers about major policy changes before the policy was publicised and implemented. This would ensure that teachers would not be the last to know about changes in the education system (ibid., 1979).

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### 1.2.4 The New Education System

The Goh Report (1979) resulted in the introduction of a New Education System in February 1979. The New Education System introduced ability-based streaming at the primary level in 1980. Through ability-based streaming, students who passed the Primary 3 examinations were channelled into the normal bilingual course. Under the normal bilingual course, students completed three years at the upper primary level, i.e., Primary 4-6, and sat for the PSLE at Primary 6. Students who failed the Primary 3 examination but passed the Primary 2 examination were sent to take the extended bilingual course. The extended bilingual course was a five-year upper primary course that students took from Primary 4 to 8 before taking the PSLE in Primary 8. However, students who failed both the Primary 2 and 3 examinations in addition to an achievement test administered by the Ministry of Education were channelled into the monolingual course. In the monolingual course, students studied for five years at the upper primary level, from Primary 4 to 8, and sat for the Primary School Proficiency Examination at the end of Primary 8. Unlike the PSLE, which offered English, a second language (Chinese, Malay or Tamil), Science and Mathematics, the Primary School Proficiency Examination offered only English and Mathematics, with a second language (Chinese, Malay or Tamil) offered in an oral examination. The students who were channelled into the normal and extended bilingual courses could proceed to secondary schools. The students who were channelled into the monolingual course were channelled to the Vocational and Industrial Training Board and sought employment afterwards (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

At the secondary school level, the New Education System saw the establishment of three secondary education courses: the Special, Express and Normal streams. The Special course was offered to the top 10% of students who passed their PSLEs. This four-year secondary course aimed to provide the brightest students with an opportunity to be bilingual at the first language level. The students sat for the GCE 'O' level examination at the end of Secondary 4. Thereafter, they proceeded on to either a two-year junior college or three-year pre-university course, where they took the GCE 'A' level examination for admission to university. These students also had the option of attending a polytechnic school to further their studies if they did not want to attend university. In addition, the students who performed

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well on their PSLEs were offered the Express stream. The Express stream was a four-year secondary course in which students completed the GCE 'O' level and then went on to either a junior college or pre-university courses. The remaining students who passed the PSLE were offered the Normal stream. In this stream, students completed a four-year secondary school programme and took the GCE 'N' level examination. If they performed well on this examination, they proceeded on to the GCE 'O' level examination. The GCE 'N' level examination was provided to allow students who failed at the GCE 'O' level to gain a qualification that would allow them to find gainful employment (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

The New Education System was accompanied by the introduction of a new Moral Education programme introduced into primary and secondary schools. This new Moral Education programme was recommended by the Moral Education Committee led by the late Cultural Minister Mr Ong Teng Cheong. The committee had found the 'Education for Living' and 'Civics' programmes to be inadequate and ineffective. Two programmes including the 'Good Citizen' programme at the primary level and the 'Being and Becoming' programme at the secondary level were designed to provide Singaporean students with a common set of desirable moral values that encompassed personal behaviour, social responsibility and loyalty to the country. In addition, a compulsory subject, 'Religious Knowledge', was introduced to all of the upper secondary students in 1982. To cater to the various religious affiliations of the student population, subjects such as 'Bible Knowledge', 'Islamic Religious Knowledge', 'Buddhist Studies', 'Hindu Studies' and 'Confucian Ethics' were offered. The Religious Knowledge programme was introduced in the hopes that it would reinforce the values learned in the Moral Education programme (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

In addition to the introduction of the new Moral Education and Religious Knowledge programmes, the 'Gifted Education' programme was introduced in 1984 under the direction of the New Education System. The programme aimed to provide intellectually gifted children with an educational experience best suited to their abilities and aptitudes. It was in line with the objective slated in the Goh Report (1979) that every child's potential would be maximised (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

The main objectives of the improvements to Singapore's education system recommended by the Goh Report (1979) and the initiatives taken by the New Education

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System were to lower the attrition rate among students at both the primary and secondary levels and to maximise the potential of each child. The recommended improvements and initiatives were successful. By 1984, the overall percentages of students who passed the PSLE in English and their first language were 85.5% and 98.7%, respectively. For 'O' level English, the passing rate percentage was more than 90%. (Goh and Gopinathan, 2008, p. 25, as cited in Lee, Goh, Fredriksen and Tan, 2008) Furthermore, the attrition rates at both primary and secondary schools declined sharply. In 1986, only 3,772 students or less than 1% of the total school population below 16 years of age left school without having at least 10 years of education. (ibid., 2008) Students were placed in streams that allowed them to study at paces they were comfortable with. This might have resulted in the low PSLE and 'O' level failure rates and the low student attrition rate. Bryk and Thum (1989) found that the dropout rates in schools were lower when the students were more involved in academic programmes and their homework and had a safe environment. Smyth (1999) found that dropout rates tended to be low in schools, which enhanced students' academic progress. Translating these findings into the Singapore context, the students who stayed in the education system for at least 10 years might have been more involved in their studies because they were placed in streams that catered to their abilities. Being able to cope better in streams that matched their abilities led to a better homework completion rate. These students also felt that they were studying in safe environments.

However, the Goh Report (1979) did not consider the motivation of primary and secondary students or determine whether students dropped out of school because they were unmotivated in their studies. Research related to student motivation and dropout intention has been well established. Vallerand et al. (1997) found dropouts to have lower levels of self-motivation and higher levels of amotivation. Leondari, Syngollitou and Kiosseoglou (1998) reported that motivated students performed well in terms of academic achievement. In their study of the transition of students into the first year of high school, Otis, Grouzet and Pelletier (2005) found a correlation between dropout intention and a decreased self-determined motivation. Alivernini and Lucidi (2011) concluded that a low level of self-determined motivation was the best indicator of one's intention to drop out. Hence, the 3,772 students who reportedly dropped out of school with fewer than 10 years of education (Goh and Gopinathan, 2008, p. 25, as cited in Lee, Goh, Fredriksen and Tan, 2008) might have had low levels of self-determined motivation. Some of the students might have dropped out due



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to repeated PSLE failures. (ibid., 2008) They also might have failed their school examinations repeatedly and hence lost the motivation to study.

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### 1.2.5 Towards Excellence in Education

The education policies and initiatives of the Singapore government complemented the human resource requirements for the country's first and second industrialisation phases. From the 1960s to the early 1980s, Singapore's economy was well supported by growth in the manufacturing and service industries. (Ng, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008) However, in 1985, the country's economy was badly affected by a global recession that brought an end to the high growth rate Singapore had enjoyed for the past two decades.

To revive and stimulate future economic growth, the Economic Committee recommended a set of policy changes that would have implications for the future direction of education in Singapore. The report, entitled 'The Singapore Economy: New Directions', emphasised that the 'population should be educated and trained to its fullest potential' (Economic Committee, 1986, p. 8) In addition, there was a need to develop a creative, thinking and innovative society that had flexible skills at every level of the economy. (Economic Committee, 1986) Based on the report of the Economic Committee, the Ministry of Education concluded that future education policies should be guided by the following three principles:

- i. education policy must keep pace with the economy and society;
- ii. the basic fields of study, including Languages, Science, Mathematics and Humanities, will be emphasised to encourage logical thinking and lifelong learning; and
- iii. creativity in schools must be boosted through a 'bottom-up' approach whereby the initiative comes from principals and teachers instead of the Ministry. (Tan, 1986b)

These guiding principles were reinforced by Education Minister Dr Tony Tan's announcement in February 1986 that he intended to focus on 'excellence in education'. In addition, he expressed his belief that schools should be given more autonomy and flexibility to achieve such excellence. These guiding principles together with the remarks of the Education Minister heralded a new phase in Singapore's education system. This phase was known as 'Towards Excellence in Education'. (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997)

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'Towards Excellence in Education' took place from 1985 to 1990. Under the auspices of this phase, the Ministry of Education adopted the following three main strategies for achieving excellence in the education system:

- i. the conversion of double-session schools into single-session schools;
- ii. the establishment of independent schools; and
- iii. the institution of pastoral care and career guidance programmes in schools. (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997, p. 26)

It was thought that converting double-session primary and secondary schools into single-session schools would permit greater flexibility in time-tabling and programme organisation and meet the specific needs and interests of students, as it would make school facilities available throughout the day instead of splitting them between morning and afternoon sessions. The pilot project related to single-session schools found that they improved coordination between school staff and facilities. Furthermore, the principals at these schools reported that their staffs and students were able to stay after school to take part in formal and informal activities, fostering a greater sense of belonging to the school and promoting excellence in education.

The strategy to establish independent schools was adopted with the hope that it would minimise bureaucracy in schools and encourage the independent hiring of principals and teachers from the competitive market. Six well-established government secondary schools were converted into independent schools upon the adoption of this strategy. It was thought that these schools would spearhead innovative programmes and provide quality education. (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997)

Finally, the institution of pastoral care and career guidance programmes involved integrating pastoral care into curricula to meet students' social and emotional needs as they progressed in their educational development. (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997) The programmes were launched in 17 schools in 1988 with another 12 schools joining in 1989. They helped provide counselling and career guidance to students in both primary and secondary schools. Pastoral care in schools went from being ad hoc to developmental and proactive after the programmes were launched. (ibid., 1997)

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The 'Towards Excellence in Education' phase was created to meet the needs of academically proficient students in primary and secondary schools. However, it did not explore what motivated those students. In their study of achievement goals and intrinsic motivation in children, Heyman and Dweck (1992) found that motivation could be affected by performance goals regardless of whether the children had high or low levels of confidence. Children may give up opportunities for long-term development and interests to obtain positive feedback and outcomes. Heyanga and Corpus (2010) found that middle-school students with high intrinsic coupled with low extrinsic motivation received better grades than those with low intrinsic coupled with high extrinsic motivation. The academically proficient students in Singapore during this phase of the education system might have achieved good grades on their examinations and had curricula that were specially catered to suit their needs. However, their motivation to learn was not determined. It is not known whether they would have persevered in their studies if they had encountered obstacles and difficulties. Knowledge of the students' motivation could have allowed this education phase to be better regulated and cultivate students who were keen learners. Instead, the education system served to complement the economic strategy.

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### 1.2.6 The Improved Primary School Education System

In July 1990, in a bid to review the education system and take measures to ensure that Singapore's education system continued to serve the needs of the nation in the 1990s and beyond, The then, Minister of Education Dr Tony Tan established a review committee to make recommendations to improve the education system (Jason, Gopinathan and Ho, 1997). In 1991, the review committee reported the following three major findings.

- i. There was a need to improve students' foundations in English and Mathematics at the primary school level to prepare them for further education and training.
- ii. Streaming at the Primary 3 level was premature, as there was a relatively high incidence of lateral transfers at Primary 4 and 5.
- iii. Students and their parents did not consider post-primary vocational education and training to be desirable options. There was a high premium placed on academic education, and students could achieve low levels of skills training with only a primary education (ibid., 1997, p. 419).

In light of these findings, the Improved Primary School Education System was established in 1991. Under this new system, primary school education was structured to have a foundation stage of four years, with streaming taking place at the end of the foundation stage at Primary 4. Furthermore, the orientation stage for primary school was to be held from Primary 1 to 2. In addition to these changes to the primary school education system, structural changes were made to secondary schools. Although secondary schools continued to offer Special, Express and Normal streams, the Normal stream was expanded in 1994 to include a technical-orientated curriculum known as the Normal Technical stream. In this stream, students studied the English language, their first language at the basic level and examinable subjects including Mathematics, Computer Applications, Science, Technical Studies and Home Economics. The students also studied non-examinable subjects such as Social Studies, Religious Knowledge, Physical Education and Art and Crafts (Yip et al., 1997, as cited in Jason, Gopinathan and Ho, 1997).

In addition to these changes to the primary and secondary school systems, the Vocational and Industrial Training Board was renamed the Institute of Technical Education in April 1991 to reflect its restructuring, which included the provision of vocational and

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technical training programmes to meet the needs of students with 10 years of general education. Although structural changes were made at the primary and secondary school levels, the structures of junior colleges and polytechnic schools remained the same under the Improved Primary School Education System (ibid., 1997).

The Improved Primary School Education System was established to cater to the needs of academically weaker students and ensure they would obtain 10 years of formal education from the primary to secondary levels. However, the system did not provide any incentive to study the motivation of the students at both the primary and secondary schools. Knowing what motivated the students to study would have helped clarify their intentions or potential to drop out of school, especially at the primary school level (Vallerand et al., 1997; Leondari, Syngollitou and Kiosseoglou, 1998; Otis, Grouzet and Pelletier, 2005; Alivernini and Lucidi, 2011) Students dropping out from primary school was an issue that surfaced in a report on compulsory education in July 2000.

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1.2.7 Thinking Schools, Learning Nation

There was a significant increase in the number of 'O' level passes under the Improved Primary School Education System, marking the system's academic achievement. However, in its bid to make the education system competitive, the Ministry of Education introduced a new initiative known as 'Thinking Schools, Learning Nation' in 1997. (Ng, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008) This initiative was introduced after a strategic review of education. It aimed to prepare children in Singapore for the future and to build in them a sense of resiliency that would prepare them for future challenges. In his speech on 'Thinking Schools Learning Nation' at the opening of the 7th International Conference on Thinking, Senior Minister Goh Chok Tong, who was then Prime Minister, stated the following:

'Our Ministry of Education is undertaking a fundamental review of its curriculum and assessment system to see how we can better develop the creative thinking skills and learning skills required for the future. It is studying how to cut back on the amount of content knowledge that students are required to learn, and to encourage teachers and students to spend more time on projects that can help develop these skills. ... Thinking Schools will be sites of learning for everyone, including those who shape our educational policies. Schools will provide lessons on how policies are working out on the ground, and give feedback on whether policies need to be changed. This process, of knowledge spiralling up and down the system, will be a defining feature of education for the future.' (Goh, 1997)

Speaking on the topic of the 'Learning Nation', he stated the following:

'Learning Nation begins by recognising that education is a continuum, starting with the early pre-school years and continuing throughout life. ... We must get away from the idea that it is only people at the top who should be thinking, and the job of everyone else is to do as told. Instead, we want to bring about a spirit of innovation, of learning by doing, of everyone each at his own level all the time asking how he can do his job better. ... Excellence does not simply mean 'outstanding'. Excellence means each of us at our own level, being the best that we can be. We want to have an environment where workers and students are all the time thinking of how to improve.' (Goh, 1997)

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In summary, the aim of the Thinking Schools was to develop creative thinking skills, a nationalistic commitment towards Singapore and a passion for lifelong learning in young people. The Learning Nation aimed to encourage a spirit of innovation and creativity at every level of society and not just among the educational institutions. In addition, the initiative aimed to create ability-driven education that would allow students' aspirations and interests to be better met. It also aimed to create an education system that would value innovation, nurture diversity and encourage individuals with different strengths (Ng, 2008, as cited in Lee, Goh, Fredriksen and Tan, 2008).

At a macro level, the 'Thinking Schools, Learning Nation' initiative saw the Ministry of Education implement two strategies at the primary and secondary levels. The first strategy was 'The School Excellence Model', which was introduced in 2000 to guide schools to adopt a self-appraisal system that would allow them to continually improve. The model was adapted from the Singapore Quality Award Model and the education version of the American Malcolm Baldrige National Quality Award Model. The indicators and areas addressed in the model allowed schools at both the primary and secondary levels to pitch themselves against national organisational excellence benchmarks that pertained to their respective levels. Because schools were externally validated based on the model, they also had to continuously question their current practices, establish norms and think of creative and effective ways to deliver the desired education outcomes systematically and holistically (ibid., 2008).

The next strategy involved awarding the Singapore Quality Class Award to schools at both the primary and secondary levels. This award was based on the Singapore Quality Award Business Excellence Framework and was administered by the Standards, Productivity and Innovation Board of Singapore. Both primary and secondary schools were encouraged to participate in the award competition to ensure greater professionalism in the management of their organisations. To qualify for the Singapore Quality Class Award, schools had to score well on the following seven dimensions: leadership, planning, information, people, processes, customers and results. The term 'people' referred to the teachers at the schools and the term 'customers' referred to the students, their parents and members of the community who were involved in the school programmes (ibid., 2008).



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Through these two main strategies, school principals were given greater autonomy to lead and manage their schools. In addition, school leaders and staff were encouraged to emphasise innovation and instil greater professionalism in the management of schools, as the Ministry of Education prescribed fewer programmes.

At the micro level of the 'Thinking Schools, Learning Nation' initiative, the role of the teacher in the classroom changed. Instead of being central to the classroom environment, the teacher became a facilitator and a guide in classroom project work. In this project work, students drew various strands of a topic together, thus obtaining a holistic view of the knowledge gained. As facilitators, the teachers encouraged students to work together in teams and emphasised the need to recognise the strengths of each team member. In addition, they encouraged students to be resourceful in gathering and processing information and displaying the knowledge they had acquired (ibid., 2008).

Other than facilitating, learning teachers played a role in character and leadership development in schools. Character development took place formally and informally in Civics and Moral Education lessons, pastoral care and career guidance programmes and co-curricular activities. Through their participation in co-curricular activities, students were exposed to programmes that developed their leadership skills and encouraged them to acquire confidence and self-awareness. In addition, the teachers promoted social and cooperative skills that they instilled in their students. Students also learned such skills from their involvement in the Community Involvement Programme, in which they were exposed to a world that was different from theirs.

The 'Thinking Schools, Learning Nation' initiative encouraged innovation and creativity in classroom practices in the hope that it would transform the focus of Singapore's education landscape from the quantity of learning to the quality of learning. A number of studies have examined the issues and challenges the initiative faced, including ability-driven education, the marketisation of education, school-stakeholder partnerships, innovation and enterprise, 'teach less learn more', national education, teachers' professional development, the realities of teaching in the midst of reform, the challenges of middle management, special needs education, sexuality education, the integrated programme, the international

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baccalaureate diploma programme, knowledge and inquiry and assessment in the 'teach less learn more' paradigm (Jason and Ng, 2008). However, the initiative did not consider student motivation.

Education research has found positive relationships between creativity and motivation. In a meta-analysis of 19 papers published between 1990 and 2010, Jesus, Rus, Lens and Imaginário (2013) found a significant relationship between intrinsic motivation and creativity. In their review of the findings of creativity and motivation studies, Eisenberger and Shanock (2003) found that one's creativity increased when he or she expected a reward for that creativity. They also concluded that rewards could increase creativity through increased task interest. In their experiment on the effects of rewards on self-regulation, intrinsic motivation and creativity, Selart et al. (2008) found introjected regulation to have a positive effect on creativity, indicating that promoting a sense of self-worth among individuals could promote creativity. The 'Thinking Schools, Learning Nation' initiative could have further enhanced creativity in classroom practices among teachers and students if it had measured the motivation of students.

Despite the implementation of new education initiatives to improve the quality of education in schools, some students were not registered by their parents for primary school. Furthermore, a number of students dropped out without completing six years of primary education. In 1999, the Committee on Compulsory Education Singapore was established to explore the issue of students not being registered for primary school. The committee found that about 461 children per year were not registered by their parents for Primary 1 education and that about 183 primary school students dropped out of the education system in 1998. This number of dropouts did not include students who intended to drop out during their primary school years. Students who showed signs of dropping out were dissuaded from doing so by their school principals and teachers and their attendance rates were monitored closely. In some cases, school superintendents and educational psychologists became involved to dissuade the students from dropping out. The schools extended financial aid to the students who required it. Despite all of these efforts, the number of dropouts from Primary 1 to 6 remained at 183 students in 1999. The number might have been higher had the relevant school authorities not intervened (Committee on Compulsory Education Singapore, 2000).

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In 2003, the Committee on Compulsory Education recommended that all Singaporean children attend six years of compulsory education from Primary 1 to 6. Three categories of children were exempted from the Compulsory Education Act: those who were enrolled in madrasahs offering full-time religious education, those who were enrolled in San Yu Adventist School and those who received home schooling. Furthermore, the committee recommended that the law provide a range of penalties to deal with cases of non-compliance. The penalties imposed on the parents of non-compliant children included fines and, in extreme cases, jail terms. However, legal enforcement was imposed only as a last resort when counselling and mediation processes had failed (ibid., 2000).

The Compulsory Education Act implemented in 2003 for Singapore citizens born after 2 January 1996 (MOE, 2013) prevented primary school children from dropping out of the education system. However, the Ministry of Education took no initiatives to consider student motivation. Many studies have found that knowledge of the relationships between students' motivation, grades and potential to drop out from the Singapore education system may allow class lessons to be planned in a way that would improve students' motivation. This may help to decrease the number of dropouts without relying on legislative enforcement.

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### 1.2.8 Primary Education Review and Implementation

In a bid to further improve the quality of Singapore's primary education system, the Ministry of Education appointed a committee in 2008 to study and determine the priorities, programmes and resources required to bring primary school education to the next level. The committee, known as the Primary Education Review and Implementation (PERI) Committee, sought the views of primary school education stakeholders, including school management and advisory committees, principals, vice-principals, heads of departments, teachers, parents of school-going children, students and members of the public, in its exploration of how the primary school education system could be further improved. Upon collating the views of these stakeholders, the PERI Committee proposed the following three key changes that could be implemented in primary schools:

- i. balancing knowledge with skills and values;
- ii. investing in a quality teaching force; and
- iii. enhancing infrastructure (Ministry of Education, 2009, p. 10-13).

In terms of the first key change, i.e., balancing knowledge with skills and values, the PERI Committee made the following three recommendations:

- i. the use of engaging pedagogy to teach skills and values;
- ii. emphasising non-academic programmes within the curriculum; and
- iii. additional holistic assessment to support learning (ibid., 2009, p. 10-11).

The first recommendation involved training teachers to master the content of their subjects and strengthening their repertoires of generic and subject-specific teaching methods. In terms of emphasising non-academic programmes within the curriculum, the committee recommended that the Programme for Active Learning (PAL) for all Primary 1 and 2 students studying in the Sports and Outdoor Education and Performing and Visual Arts fields work in tandem with the move to the single-session model. Primary 3-6 students were encouraged to continue with the PAL and/or opt for a main co-curricular activity. Furthermore, the committee recommended that schools be given the autonomy, albeit with guidelines and examples of good practices, to implement the PAL, which was expected to complement any current Art, Music and Physical Education programmes. In addition, it urged that qualified teachers in the areas of Art, Music and Physical Education be optimally

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deployed to teach these subjects to enhance their quality. The committee also recommended that the Ministry of Education provide schools with funds to engage trained coaches, instructors and service providers to conduct quality PAL activities and procure equipment for Art, Music, Physical Education and other PAL activities. It urged the Ministry of Education to work closely with the Singapore Sports Council, National Arts Councils and other relevant agencies to establish a pool of instructors for the PAL. Finally, it recommended holistic assessment to support learning. Under this key change, the committee recommended that the Ministry of Education encourage primary schools to move away from an overly strong emphasis on examinations at the Primary 1 and 2 levels. Instead, schools were encouraged to explore the use of bite-sized forms of assessment (ibid., 2009, p. 10-11).

The second key change proposed by the committee involved investing in a quality teaching force. The committee made three recommendations: to provide additional manpower; to recruit committed, high quality educators; and to equip teachers through training and professional development (ibid., 2009).

In its first recommendation under this second key change, the committee urged the Ministry of Education to recruit and train more Art, Music and Physical Education teachers to raise the quality of instruction for those subjects. The committee also urged schools to engage individuals with strong oral communication skills as language facilitators (ibid., 2009).

The second recommendation under this key change targeted the Ministry of Education's recruitment of teachers. The committee urged the Ministry to continue its careful selection of aspiring educators with the right aptitudes, passion and suitability for teaching. The pool of teachers to be recruited had to include graduates or those who qualified for an undergraduate education to maintain the calibre of the teaching service. In addition, the Ministry was asked to encourage eligible non-graduates to join the teaching service by enrolling in the National Institute of Education's degree programme and to give allied educators future opportunities to become full-fledged teachers. Finally, the committee recommended that non-graduate teachers be given opportunities and avenues to upgrade themselves through professional development and/or academic upgrading (ibid., 2009).

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The committee's final recommendation under this key change involved improving teachers' professionalism through the support of professional development courses. Under this recommendation, the committee urged the Ministry to strengthen teachers' pre- and in-service training to equip them with basic teaching skills, sound content mastery and a variety of teaching and assessment methods. In addition, the committee urged teachers at the upper primary level to become specialised in their subjects, and recommended that schools be given the autonomy to deploy teachers according to their needs. Finally, it advised the Ministry to provide schools and teachers with rich learning resources and packages and to work closely with schools to help them build expertise in the new teaching and assessment methods (ibid., 2009).

Under the third key change, the committee recommended establishing single-session primary schools and new-generation school facilities and providing support for the social services in primary schools. The committee recommended facilitating the transition of all government primary schools to the single-session model by 2016. In addition, the Ministry of Education was advised to work closely with government-aided primary schools to facilitate their transition to the single-session model at a pace that considered the needs and concerns of the schools and their respective communities. The Ministry was also advised to ensure that every Singaporean child continued to have access to a primary school near his or her home. Furthermore, the committee recommended that popular primary schools maintain sufficient numbers of places so that students who had no affiliation to these schools could still have access to Primary 1 admission (ibid., 2009).

The committee also recommended giving schools the flexibility to adjust their starting and ending times with careful consideration of the schools' local conditions, students' profiles and transportation arrangements, local traffic conditions and the starting and ending times of the secondary schools in the vicinity. In addition, the committee recommended that primary school operating hours be determined by educational goals and not social needs. The committee also urged the Ministry to monitor the implementation of single-session primary schools so that the intended objectives could be met. Finally, the Ministry was advised to continue to work with the Land Transport Authority on school bus transportation issues and with traffic police, the Housing and Development Board and local

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town councils to ensure student safety and minimise the effect on traffic around the schools (ibid., 2009).

The next recommendation under the third key change related to establishing a new-generation of primary school facilities. The Ministry of Education was advised to provide additional infrastructural support for more holistic education. In doing so, more learning spaces had to be provided for the new generation of primary schools to better support broad-based and effective learning. The final recommendation made by the committee under the third key change related to support for social services. The Ministry of Education was advised to make provisions for facilities within new and upgraded schools that would allow social service providers to meet student care demands, especially for students from disadvantaged families (ibid., 2009, p. 14).

The PERI Committee's recommendations sought to improve the quality of Singapore's primary school education system by improving the pedagogical skills of teachers, hiring individuals with specialised skills to teach and upgrading the physical infrastructure of schools to support the implementation of new programmes for students. This improvement in the quality of Singapore's primary education system was intended to keep it in pace with the country's ever-changing economic and political situations. However, the recommendations did not consider changes in student motivation. Studies have found that students' motivation shift as they progress through their years of schooling. Lau's (2009) study of Hong Kong primary and secondary students found that students' intrinsic motivation to read declined as they moved to the upper grades. Furthermore, it found that students experienced a decrease in both their intrinsic and extrinsic motivation to read as they progressed to secondary school. In their study of the changes in intrinsic and extrinsic student motivation during the transition from junior to senior high school, Otis et al. (2005) revealed that the pattern of change in all self- and non-self-determined forms of extrinsic motivation was marked by a steady decline. They also found a decline in intrinsic motivation from the final year of junior high school to the second year of senior high school. A study by Caprara et al. (2008) similarly revealed a progressive decline in the self-regulatory efficacy of students as they progressed through the education system. Understanding student motivation may allow schools to better explore the creativity of teachers in their lesson deliveries and further improve the quality of education.

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It has been 56 years since the formulation of the first education policy in Singapore. The education policy has evolved from one that focused on national survival to one that emphasized creativity and innovation. The fostering of creativity and innovation among students is an important aspect in the field of education today. Cropley (2009) and Starko (2010) as cited in Morais, M. de F., Jesus, S. N., Azevedo, I., Araújo, A. M., & Viseu, J. (2015) wrote about the growing importance of motivation and creativity in today's dynamic society and that the focus of education setting should be to provide students with creative skills and appropriate representations of creativity (Almeida, J. M. O., & Alencar, E. M. L. S., 2010). The demonstration of creativity by both teachers and students in the classroom can enhance the intrinsic motivation of students further as research by Amabile, 1996; Csikszentmihalyi, 2008; Hetland, Winner, Veenema, & Sheridan, 2007; Runco, 2007 as cited in Jaquith, Diane B (2011) have found creativity and intrinsic motivation to be closely correlated. Hence the importance in understanding student motivation in allowing teachers to demonstrate their creativity in lesson deliveries and also fostering creativity and innovation among students. However, the education policy that the Singapore government has adopted has never considered student motivation and how it can be further enhanced. Hence, the current study aims to explore how the motivation of students at the primary school level shifts as they progress through their primary years. Knowledge of this shift may help change the education policy into one that considers how student motivation may be further enhanced to improve the pedagogical creativity of teachers in the classrooms. This should further improve the quality of Singapore's primary school education.



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## Chapter 2 The theoretical background

### 2.1 Self-Determination Theory

Motivation as a theoretical construct, is explored and studied in many theories. Some of these theories include; drive theory, Maslow's hierarchy of needs, Alderfer's existence, relatedness and growth theory, expectancy-value theory and self-determination theory (Schneider and Alderfer, 1973; Harrell and Stahl, 1981; Weiner, 1985; Wigfield and Eccles; 2000; Deci and Ryan, 2000). While these theories seek to explain people's needs and desires and how mental and physical activities are carried out to meet such needs and desires, these theories other than self-determination theory do not explore the degree to which a person's behavior is self-regulated. In the study on the degree to which pupils' self-regulated behavior shifts as they progress along their primary school years, self-determination theory is used as the theoretical background of this thesis.

The concept of motivation has been explored in many studies which seek to explain the processes that are involved in peoples' sensing a need or desire, the activation, guiding and selection of their physical and mental activities aimed at meeting the need or desire. And when the need is met, there is a reduction of the sensations of need (Zimbardo, Johnson and McCann, 2014). The assumption made by these studies is that there is a belief that upon the initiation of a behavior, people will persist in such a behaviors that it will lead to a desired outcome or goal. This concept of motivation assumes that the quality of performance and the emotional aspects of experience in the attainment of two equally valued goals with the same expectancies for attainment will be same (Deci and Ryan, 2000). However research have found that different types of goals do have different behavioral and affective consequences (Dweck, 1986; Nicholls, 1984; Carver & Scheier, 1998; Elliot & Church, 1997; Higgins, 1996 as cited in Deci and Ryan, 2000). The differentiation of goals and the regulatory processes through which the outcomes are pursued is a concept in motivation of which is explored by the Self-Determination Theory. In other words, in the pursuit and attainment of goals, the Self-Determination Theory concerns itself with the degree to which people satisfy their basic psychological needs as they pursue and attain their valued outcomes (Deci and Ryan, 2000). This study into human motivation by the Self-Determination Theory also takes into consideration the social and cultural context of people, to which can either facilitate or

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undermine the determination and initiation of their activities besides their quality of performance and well-being (ibid, 2000).

This broad framework of study into human motivation by the Self-Determination Theory comprises of six mini theories, each of which seek to explain a facet of motivation (Deci and Ryan, 2000). The first mini theory of the Self-Determination Theory is the Cognitive Evaluation Theory. The Cognitive Evaluation Theory seeks to explore into how rewards, interpersonal controls and ego involvements have impact on intrinsic motivation and interest. Translating this theory to the classroom scenario this will mean exploring into how positive reinforcements, perceived locus of control and perceived competency can have effect on intrinsic motivation and interests towards school and homework (ibid, 2000).

The next mini theory is the Organismic Integration Theory. This theory addresses extrinsic motivation in its various forms where it falls along a continuum of internalization. The forms of extrinsic motivation includes external regulation, introjection, identification and integration. The more internalized the extrinsic motivation, the more autonomous a person is when enacting a behavior. In a classroom scenario, the more internalized an extrinsic motivation is, the more autonomous a students is when completing their school or homework. Furthermore, the theory is also concerned with social contexts that leads to people either resisting, partially adopting or deeply internalizing values, goals or belief systems. In the Organismic Integration Theory, autonomy and relatedness are critical to internalization. This will mean that for pupils to internalized the need to do their school and homework, there must be an atmosphere of autonomy in the behavior of the pupils in class and also a sense relatedness towards one another. This sense of relatedness towards one another also applies the relatedness the pupils have towards their teachers and also their school as a whole (Deci and Ryan, 2000).

The third mini theory of the Self-Determination Theory is the Causality Orientation Theory. This theory describes the differences individuals have in their tendencies to orientate towards their environments and to regulate their behaviors in different ways. The theory explores the degree to which people are autonomy orientated, control orientated and impersonally orientated. Autonomy orientation refers to the regulation of one's behavior on

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the basis of interests and self-endorsed values. Hence a pupil who does his or her homework or school work on his or her own volition is one who does it out of interest towards the school or homework and also one who values getting good academic results and this value comes from the self. Control oriented involves orienting oneself towards controls and directives on how one should behave. Translating this to a classroom scenario, this will mean having pupils who will control their behavior and direct it towards the completion of their school and homework. Impersonally oriented refers to amotivation and a lack of intentional action. A child with impersonal orientation will not want to do his or her school work and also homework. He or she may not even want to go to school. However this does not mean that the child is anxious or has fear with going to school. He or she is simply not motivated to go to school and do his or her work – a sign of amotivation. (Deci and Ryan, 2000).

The fourth mini theory of the Self-Determination Theory is Basic Psychological Needs Theory. This theory posits that it is through the satisfaction of the needs of autonomy, competency and relatedness of an individual that one can function optimally and have psychological well-being. In an examination of the role of basic psychological needs of autonomy, psychological well-being and relatedness in daily well-being, Reis, Sheldon, Gable, Roscoe and Ryan (2000) found that measures of these psychological needs are associated with individuals' daily well-being. A child's well-being in school is hence related to his or her satisfaction of the basic psychological needs of autonomy, competency and relatedness.

Goal Contents Theory is the fifth mini theory of the Self-Determination Theory. Goal Contents Theory seeks to explore into the impact of intrinsic and extrinsic goals on motivation and wellness (Deci and Ryan, 2000). It is argued that in the pursuit of goals, the attainment of some life goals may provide greater satisfaction of basic psychological needs than the pursuits and attainment of other goals. The pursuit and attainment of goals that provide greater satisfaction is associated with greater well-being. (Ryan, Sheldon, Kasser and Deci 1996). T. Kasser and Ryan (1993, 1996, 2001) further emphasized that intrinsic aspirations or goals like affiliation, personal growth and contributions to the community are closely related to basic need satisfaction. On the other hand, extrinsic aspirations like attaining wealth, fame and image, which are goals that are contingent to approval are least likely to be related to basic need satisfaction. In fact such extrinsic aspirations may even distract the satisfaction of

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basic needs. Hence a pupil who is extrinsically aspirated may have poor well-being in class than a pupil who is intrinsically aspirated. T. Kasser and Ryan (2001) in their study on 18 years old, demonstrated that youths with intrinsic aspirations relate positively to global social functioning and social productivity and negatively to conduct disorders. While youths with extrinsic aspirations do not demonstrate such traits.

The last mini theory of the Self-Determination Theory is the Relationships Motivation Theory. This theory posits that for the well-being of a person, it is important that the individual engages in a relationship. This engagement in relationship will mean having best friends, involvement with romantic partners or having belonging to a group. In the satisfaction of needs, high quality relationships can lead to the satisfaction of the needs for relatedness, competency and autonomy. Besides that, in personal relationships, the highest quality personal relationships are those where partners support the autonomy, competence and relatedness of each other (Deci and Ryan, 2000). Hence in a classroom or school setting, a child will be able to cultivate good friendships with his or peers so long as they are able to support the relatedness, autonomy and competency needs of each other to maintain their well-being in school.

Each mini theory of the Self-Determination Theory explores into a facet of motivation in people. In the study into the continuum of extrinsic motivation to which pupils fall into and if their motivation will shift along this continuum as they progress along their primary school, it is proposed that the Organismic Integration Theory be used as the theoretical background for this study.

Teachers often tell the parents of children who fail to do well in school that their children show no motivation in their work. This use of the term 'motivation' implies that a child who attends school and studies may cease to continue this behaviour to the extent that it prevents him or her from achieving the desired goal or outcome of performing well academically. It complements contemporary theories of motivation, which assume that people who engage in a certain behaviour will continue to do so to the extent that it leads to a desired goal or outcome (Deci and Ryan, 2000; Zimbardo, Johnson and Hamilton, 2014). In this way, the term 'motivation' is considered a unitary concept according to which people are viewed based on their varying levels of motivation to complete a task. However, 'motivation'

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is not a unitary concept. People vary in terms of both the level and orientation of the motivation they show in a task. When they embark on a task, they exhibit different levels and types of motivation that lead them to complete that task. Hence, the term 'lack of motivation' as applied to a student who fails to perform well in his or her work may infer that the student has no interest in that work. Furthermore, it may mean that the student is not keen to receive approval from his or her teachers or parents, or that the student does not understand the importance of obtaining good grades in his or her studies.

Self-determination theory accounts for this multidimensional aspect of motivation in detail. It holds that the way in which people pursue goals, the types of goals they pursue and the results of such pursuits may differ. The important factors in the pursuit and attainment of goals include how much a person is able to satisfy his or her basic needs and achieve a valued outcome (Deci and Ryan, 2000). The satisfaction of needs is important because it determines one's goal pursuit behaviour, which in turn clarifies his or her goal-directed behaviour, psychological development and well-being (ibid, 2000).

'Needs' can be viewed as the physiological or psychological nutriments essential for the survival, growth and integrity of an individual (Ryan, Sheldon, Kasser and Deci, 1996; as cited in Baard, Deci and Ryan, 2004). This definition assumes that such 'needs' are innate rather than learned and that their satisfaction can be empirically verified. A need is defined as such if its satisfaction is empirically demonstrated to relate to a person's growth and health. Otherwise, it is considered a 'desire' (Baard et al., 2004). Self-determination theory proposes that humans have three innate psychological needs that are essential to their on-going psychological growth, integrity and well-being: the needs for competence, relatedness and autonomy (Deci and Ryan, 2000). Under the classroom condition, students must fulfil these three innate needs to progress well in terms of their psychological and physical satisfaction with righteousness. Indeed, they must fulfil their needs to do well in their subjects and attain their desired outcomes. In addition, they must fulfil the affiliation needs of both the classroom and school and the need to make their own decisions or be self-determined when making decisions that relate to their class and schoolwork.

According to self-determination theory, the satisfaction of these needs facilitates self-motivation and allows it to effectively facilitate the internalisation of values and regulatory

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processes. In addition, the satisfaction of these needs also aids the adjustment process as it provides the necessary sustenance for human growth and development. Students whose needs are satisfied are self-motivated to study hard and complete their schoolwork and homework. However, if these needs are not satisfied, the students' motivation is affected, leading to unfavourable consequences in which the students are not motivated to do their work and hence fail their examinations (Ryan, 1995; Baard, 1994; Ryan et al., 1996; Sheldon, Ryan and Reis, 1996; as cited in Bard et al., 2004).

In its organismic and functional terms, self-determination theory assumes that humans are active and growth-oriented so long as the nutriments that support such growth are attainable. As long as the conditions that support need satisfaction are facilitated, individuals are expected to achieve optimal development and well-being. However, if the basic needs are not satisfied, such development is not observed and degradation of growth may even occur (Deci and Ryan, 2000). In other words, self-determination theory postulates that these fundamental nutriments are part of the adaptive system in which 'humans get engaged in interesting activities, exercise capacities to pursue connectedness in social groups and integrate intrinsic and interpersonal experiences into a relative unity'. The fundamental nutriments include 'ambient supports for experiencing competence, relatedness and autonomy' (ibid, 2000, p. 229). Translating this aspect of self-determination theory to students at the primary school level, children who are supported by good classroom and home environments want to participate in interesting activities in class, make friends or join groups with their classmates with senses of integrity, responsibility and resiliency. Such support comes from both parents and teachers, who give students senses of competency, significance and self-determination.

Furthermore, self-determination theory holds that the nutriments of experiencing competency, relatedness and autonomy; natural processes such as intrinsic motivation; the integration of external regulations; and movement towards well-being operate at an optimal level. Such natural processes occur not only at their optimal level in the immediate presence of these nutriments, but also when one has the inner resources sufficient to find or construct the necessary nourishment. However, when such nutriments are lacking as a result of hindered organismic processes, the individual may resort to becoming self-protective or defensive. Such defensive processes include focusing on one's self and neglecting others and

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engaging in antisocial activities as a means of satisfying unfulfilled needs (Deci and Ryan, 2000). Applying this concept of self-determination theory in a primary school context, when students are unable to do well in their work, fail to establish good social relationships with their classmates or cannot obtain the level of freedom they desire, they display antisocial behaviour and become selfish in compensation for their unfulfilled needs.

According to drive theory, the individual is driven to satisfy a biological need, and when this need is satisfied the individual returns to a state of homeostasis and passively waits for the next disequilibrium (Zimbardo, 2014). In contrast, self-determination theory views the individual as having the natural inclination to act on his or her inner and outer environments, engage in activities that interest him or her and move towards personal and interpersonal congruity. The individual does not need to be prodded or pushed to act, and his or her behaviour does not need to be geared towards need satisfaction. Instead, the individual can focus on interesting activities or important goals, depending on whether the context allows for need satisfaction. Non-optimal or dysfunctional consequences arise when an individual's needs are not satisfied upon taking action (Deci and Ryan, 2000).

Based on this perspective of self-determination theory, a child does his or her work not only to satisfy certain needs, but also because the work is interesting or he or she wishes to attain an important goal. Individuals who experience need satisfaction may not behave in such a way simply to satisfy needs, but instead may do things they find interesting or important. Doing important (a well-internalised extrinsic motivation) or interesting (an intrinsic motivation) things does not necessarily mean that a need is being satisfied. It could mean that the individual is simply experiencing the senses of autonomy and competency necessary for the enjoyment of the activity. Hence, a child who does his or her work diligently may not be trying to satisfy a basic need. Instead, he or she may be trying to experience senses of ability and freedom. The work done is pleasurable as long as it is self-organising and appropriately challenging. Although the thwarting of physiological needs influences individuals to put in more effort to satisfy those needs, the thwarting of psychological needs influences individuals to make accommodations that lessen his or her direct attempts to satisfy those needs. Hence, a child who is unable to answer an overly challenging question on a worksheet may skip that question and go on to answer the next question instead (ibid, 2000).

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According to self-determination theory, needs are innate. This view is similar to the less empirically derived theories of Maslow (1943) and White (1959). Maslow's theory of human motivation (1943) describes organisms as having basic needs that follow a set of five goals arranged in a hierarchy of prepotency, where the most prepotent goal monopolises consciousness and is involved in the recruitment of the organism's various capacities. In contrast, less prepotent needs are forgotten or denied. Maslow (1943) added that organisms were 'motivated by the desire to achieve' intellectual desires upon the satisfaction of basic needs (p. 394). According to empirically based theories, needs are investigated and learned. Maslow's theory, which is not empirically based, leans towards viewing psychological needs as innate, a concept similar to that presented by self-determination theory.

White (1959) spoke of an energy that operated in the spare waking time between episodes of homeostatic crisis in humans, an effectance motivation that involved a feeling of efficacy in which behaviour had 'an exploratory, varying, experimental character and produces changes in the stimulus field (p. 321, 329). White's formulation of effectance motivation or competence is one of the three fundamental psychological needs in self-determination theory that can energise human activity and must be satisfied to ensure long-term psychological health (Deci and Ryan, 2000).

In addition to the innate need for competence, self-determination theory considers humans' innate needs for relatedness and autonomy. The desires to love and care for others, to be loved and cared for by others and to feel connected to others reflect the theory's proposed relatedness concepts. The idea of relatedness is also considered a fundamental need that is central to theories of attachment (Baumeister and Leary, 1995; Bowlby, 1958; Harlow, 1958; Ryan, 1993; Ainsworth, Blehar, Waters and Wall, 1978; as cited in Deci and Ryan, 2000).

Self-determination theory also considers the need for autonomy to be innate. Referred to as volition, or the 'organismic desire to self-organize experience and behaviour and to have activity be concordant with one's integrated sense of self' (Angyal, 1965; deCharms, 1968; Deci, 1980; Ryan and Connell, 1989; Sheldon and Elliot, 1999; as cited in Deci and Ryan, 2000, p. 231), autonomy relates to the experiences of integration and freedom and is an



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important aspect of healthy human functioning (Deci and Ryan, 2000, p. 231). In their study of child motivation and internalisation in the classroom, Grolnick and Ryan (1989) found that the children of parents who provided autonomy support, an optimal structure and interpersonal involvement in their schoolwork displayed more intrinsic motivation and internalised regulation in their academic endeavours. Furthermore, Grolnick, Ryan and Deci (1991) found that children's perceptions of parental involvement and autonomy support predicted a greater perceived competency and autonomy.

According to self-determination theory, individuals can satisfy their needs for competency, relatedness and autonomy in any manner. This satisfaction is essential for the healthy functioning of individuals, regardless of their culture (Deci and Ryan, 2000). Translating these needs to the classroom environment, to grow up psychologically healthy in their primary school years, children must satisfy their needs for the suitable skills and knowledge necessary to complete their assigned work successfully. In addition, they must satisfy their need to develop good and healthy relationships with their classmates and teachers. Finally, they must also satisfy their needs to have the freedom to organise and take ownership of their activities and behaviour. Failure to do so has significant consequences for their health and well-being.

In its organismic and functional terms, self-determination theory assumes that humans are active and growth-oriented organisms who seek to satisfy their three psychologically innate needs as long as the nutrients to support growth are attainable. This assumption is complementary to the concept of intrinsic motivation proposed by Deci (1975). Deci (1975) proposed that the need to feel competent and self-determined formed the basis of individuals' intrinsically motivated behaviour. This proposition was based on White's (1959) proposal that individuals engaged in activities to experience efficacy or competence. It was also based on deCharms's (1968) predication that individuals were intrinsically motivated to be autonomous in the things they did.

Deci's (1975) concept of intrinsic motivation stems from two complementary definitions. The first emphasises that intrinsically motivated behaviour does not depend on reinforcement, as participating in an interesting activity is rewarding in itself (Deci and Ryan, 2000). This definition is rooted in Skinner's (1958) claim that reinforcements are involved in

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all learned behaviour (Zimbardo, 2014). The second is derived from Hull's (1943; as cited in Deci and Ryan, 2000) claim that the satisfaction of basic psychological needs is fundamental to all acquired behaviour. This claim influenced Deci and Ryan (2000) to observe that 'intrinsically motivated behaviours are a function of basic psychological needs' (p. 233). However, it must be noted that humans are naturally active organisms who engage in tasks that they find interesting and promote growth. This active engagement in activities requires the nutriment of need fulfilment. Although the experiences of competence and autonomy are fundamental to intrinsic motivation, Deci and Ryan (2000) noted that intrinsically motivated behaviour was not necessarily directed at the satisfaction of these needs. Furthermore, behaviour directed towards the satisfaction of these needs is not intrinsically motivated. Rather, intrinsically motivated behaviour is behaviour exhibited out of interest and without the aim to satisfy the needs for autonomy and competency. However, one must satisfy these needs to maintain such intrinsically motivated behaviour. In general, intrinsic motivation is promoted when conditions are conducive towards satisfying the needs for competency, relatedness and autonomy. However, intrinsic motivation can be undermined if the conditions for this need satisfaction are thwarted (ibid, 2000).

Translating this concept of intrinsic motivation to a primary school classroom scenario, it can be inferred that students do their schoolwork without any means of reinforcement as long as the work is interesting in itself and by doing so they are satisfying their basic psychological needs. However, students must satisfy their basic psychological needs to maintain the intrinsic motivation. As inferred from self-determination theory, the term 'basic psychological needs' refers to satisfying the needs for competency, relatedness and autonomy.

According to self-determination theory, the concept of intrinsic motivation does not involve only the satisfaction of basic psychological needs. In appropriate contexts, secured relatedness acts as a base for intrinsic motivation to flourish (Ryan and La Guardia, 2000; as cited in Deci and Ryan 2000; Deci and Ryan, 2000). Research has found that students who consider their teachers warm and caring display greater intrinsic motivation (Ryan and Grolnick, 1986; Ryan, Stiller and Lynch, 1994; as cited in Deci and Ryan, 2000).

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Deci (1975; as cited in Deci and Ryan, 2000) discussed the concept of intrinsic motivation and its undermining by extrinsic rewards and suggested that intrinsically motivated behaviour was the precursor to self-determined activities. Intrinsically motivated behaviour is exhibited when individuals are allowed to follow their inner interests freely and thereby naturally and automatically engage in certain activities. This concept of spontaneous behaviour was coined by deCharms (1958; as cited in Deci and Ryan 2000), who referred to it as an internal perceived locus of causality. Studies by Deci (1975) and Lepper et al. (1973) demonstrated that when people were extrinsically rewarded for doing an intrinsically interesting activity, they tended to feel controlled by the rewards. These individuals shift their perceived locus of causality for their behaviour from internal to external, displaying less intrinsic motivation. Many studies have indeed proved this observation to be true. In meta-analysis of 128 studies conducted to examine the effects of extrinsic motivation on intrinsic motivation, Deci, Koestner and Ryan (1999) found that intrinsic motivation in interesting tasks was generally negatively affected when tangible rewards were provided. This negative effect held true for all of the study participants regardless of age. The authors added that even when tangible rewards were offered as indicators of good performance, the rewards could decrease the participants' intrinsic motivation to engage in interesting tasks. They concluded that strategies that focused primarily on the use of extrinsic rewards ran the risk of diminishing intrinsic motivation.

Furthermore, studies by Deci and Cascio (1972; as cited in Deci and Ryan, 2000); Lepper and Greene (1975); Harackiewicz, Maderlink and Sansone (1984); and Amabile, DeJong and Lepper (1976) found that threats, evaluations and deadlines could undermine intrinsic motivation, as they could prompt a shift towards a more external perceived locus of causality. The results of these studies demonstrated the importance of autonomy to intrinsic motivation (Deci and Ryan, 2000). In addition, studies have found that rewards, choices and evaluations that affect intrinsic motivation negatively by shifting the perceived locus of causality from internal to external also have negative effects on creativity, the ability to solve complex problems and the deep conceptual processing of information (Amabile [1982], McGraw and McCullers [1979], Grolnick and Ryan [1987; as cited in Deci and Ryan, 2000]). The results of these studies complemented field studies conducted by Deci et al. (1981); Ryan and Grolnick (1986); and Deci, Connell and Ryan (1989) in schools and work organisations. These studies found that the provision of autonomy support was associated with more

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positive outcomes, including greater intrinsic motivation, increased satisfaction and enhanced well-being.

Self-determination theory holds that one's intrinsic motivation is enhanced by the satisfaction of not only basic psychological needs, but also the needs for autonomy, competency and relatedness. Unlike intrinsically motivated behaviour exhibited with a full sense of volition and without the need for material rewards or constraints, extrinsically motivated behaviour is exhibited not out of interest but out of the belief that it will result in separable consequences (Deci, Vallerand, Pelletier and Ryan, 1991). Early research related to extrinsic motivation found it to be antagonistic towards intrinsic motivation and assumed that it was not self-determined. However, later research related to extrinsic motivation has suggested that there are types of extrinsically motivated behaviour that differ in the extent to which they represent self-determined versus controlled responding (ibid, 1991). Hence, according to self-determination theory, extrinsic motivation behaviour is not simply unvaryingly controlled, but 'can vary in the degree to which [it is] self-determined versus controlled' (Deci and Ryan, 2000, p. 235).

The concept of extrinsic motivation has been explored in terms of its internalisation, which refers to the transformation of external regulation into inner values (Ryan, 1993; Schafer, 1968; as cited in Deci and Ryan, 2000). The concept of internalising extrinsic motivation has been explored in terms of organismic integration theory, a branch of self-determination theory.

Organismic integration theory proposes that internalisation is an active and natural process in which individuals attempt to change socially approved requests into personally endorsed values and self-regulation (Ryan et al., 1985). Translating this concept to the classroom scenario, this means that a child's willingness to do his or her homework is no longer contingent upon the rewards or punishment he or she will receive if it is not done. Instead, the child internalises the completion of the homework by taking on the responsibility for it.

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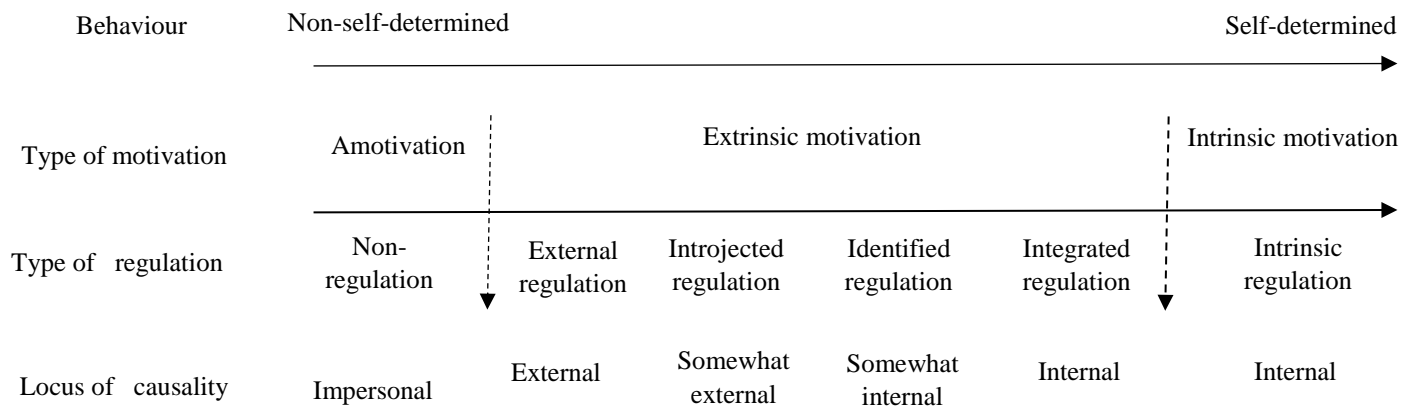
## 2.2 Organismic Integration Theory

Organismic integration theory holds that people are inherently motivated to internalise and integrate within themselves the completion of uninteresting tasks that are useful for them to function effectively in their social worlds. In addition, individuals' effective integration and internalisation of completing uninteresting tasks are fundamental to this functioning. In the classroom, to function effectively as a student, a child must pull out his or her chair and sit down without being instructed and take out his or her stationery at the start of the lesson. The completion of such uninteresting tasks is inherent in the child and allows him or her to function effectively as a student (Deci, Vallerand, Pelletier and Ryan, 1991; Deci and Ryan, 2000).

However, when the internalisation process is stalled, the regulations and values attached to the completion of uninteresting tasks either remain externalised or are only partially internalised to form introjects or un-integrated identifications. There are four forms of regulation that fall along a continuum at differing degrees to represent less-than-fully self-determined behaviour: external, introjected, identified and integrated regulation (see Figure 2.1) (Deci, Vallerand, Pelletier and Ryan, 1991; Deci and Ryan, 2000).

Figure 2.1 shows that the four regulatory styles fall along a continuum, flanked by amotivation at the extreme left and intrinsic motivation at the extreme right. The four types of regulation represent the outcomes of an on-going person-environment interaction and indicate the degree of activity internalisation. Intrinsic motivation is placed at the extreme right of the continuum in comparison with the degree to which an extrinsically motivated behaviour is self-determined. However, a vertical line is drawn to separate extrinsic and intrinsic motivation. This indicates that regardless of how self-determined extrinsically motivated behaviour is, it can never become intrinsically motivated. Highly self-determined extrinsically motivated behaviour always remains extrinsic, as it is instrumental rather than what Csikszentmihalyi (1975; as cited in Deci and Ryan, 2000 p. 237) referred to as 'autotelic'.

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**Figure 2.1.** The self-determined continuum, showing the motivational, self-regulatory and perceived locus of causality bases of behaviour that vary in the degree to which they are self-determined (Deci and Ryan, 2000, p. 237)

Amotivation is located at the extreme left of the continuum. It is defined as a state in which the individual lacks the motivation and intention to behave. When the individual lacks senses of efficacy or control in relation to a desired outcome, he or she is unable to regulate himself or herself in terms of a targeted behaviour (Pelletier, Dion, Tuson and Green-Demers, 1999; as cited in Deci and Ryan, 2000). According to self-determination theory, all of the forms of extrinsic regulation involve intentionality and motivation. In contrast, amotivation represents a lack of both extrinsic and intrinsic motivation. An amotivated person exhibits a complete lack of self-determination in relation to a targeted behaviour (Deci and Ryan, 2000).

External regulation refers to behaviour controlled by external contingencies, such as a reward or threat of punishment. The locus of initiation of the behaviour is external to the individual. A student who is dependent on external regulation does his or her schoolwork to attain a reward from the teacher or avoid the undesired consequences of being punished. This regulation has been researched extensively and found to undermine intrinsic motivation. In addition, external regulation has been found to maintain and transfer poorly once the contingencies of rewards and punishment are withdrawn (Deci, Vallerand, Pelletier and Ryan, 1991; Deci and Ryan, 1985; Deci et al, 1999; as cited in Deci and Ryan, 2000).

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The next regulation on the continuum is introjected regulation or introjection. This form of regulation entails one taking in but not accepting a regulation as his or her own along with the self-administered contingent consequences. Examples of introjected regulations include self-worth or pride, public self-consciousness and self-ascriptions. The regulation of behaviour in introjected regulation is such that the individual is pressured to produce a desired behaviour based on internalised rules and demands. The display of the desired behaviour is also reinforced with threatened sanctions, such as a loss of pride (Deci, Vallerand, Pelletier and Ryan, 1991; Deci and Ryan, 2000). A student regulated by introjected regulation completes his or her work to avoid feeling disgraced or bad in class. The act of completing this work to avoid feeling disgraced shows that the student has not identified with the regulation and hence that the regulation has not become part of his or her self. The completion of work is not accomplished by choice but by internal coercion. As the completion of work is not internalised to become part of the self, introjected regulation is more like an external control rather than a truly self-determined form of regulation. Unlike external regulation, which maintains and transfers poorly, introjected regulation is more likely than external regulation to be maintained over time. However, as a form of regulation, it remains rather unstable (Deci and Ryan, 2000).

Identified regulation follows introjected regulation. In this form of regulation, the individual recognises the underlying value of the behaviour, identifies with it and accepts its regulatory process. By identifying the value of the behaviour, the individual internalises it more and accepts its regulatory process as part of himself or herself. Hence, the individual is more willing to carry out the activity and accept it as his or her own. In this form of regulation, behaviour is considered more autonomous and self-determined than that regulated by external or introjected regulation. Identification permits the individual a sense of choice in his or her behaviour. As the self endorses such behaviour, the behaviour exhibited under identified regulation is easier to maintain and associated with higher levels of commitment and performance. However, such behaviour is still extrinsic, as it is instrumental rather than exhibited solely as a source of enjoyment or satisfaction. For example, a student may do his or her homework willingly because he or she has identified doing so as important to performing well on examinations. However, the willingness to do the homework is extrinsic, as it is identified as useful or important to succeeding at examinations. The behaviour of

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doing the homework is relatively self-determined, as the student does it willingly rather than due to external pressure (Deci, Vallerand, Pelletier and Ryan, 1991; Deci and Ryan, 2000).

The fullest and most complete form of internalised extrinsic motivation is integrated regulation. This form of regulation involves not only identifying with the importance of behaviour, but also integrating that identification with other aspects of the self. In this case, identification with certain values is harmoniously incorporated into the individual's other needs, values and identities. An individual considers his or her behaviour important and valued only when its regulatory processes are integrated (Deci and Ryan, 2000). Such behaviour is fully self-determined, and according to Deci, Vallerand, Pelletier and Ryan (1991) it appears primarily during adult stages of development (p. 330). Translating this regulation to an adult-oriented scenario, an individual may engage in part-time studies during the evening while working full time during the day. As a full-time worker during the day, the individual wants to do well in his or her work, as he or she identifies it as important for his or her career. As a part-time student at night, the individual also wants to be a good student to obtain a degree. These two identifications can cause tension in the individual, who plays the roles of both full-time worker and part-time student. Only when the two identifications are integrated and made harmonious with each other and the individual's sense of self can the internalisation process be completed. The individual must reconcile his or her tension and play both roles well by performing well in his or her work while attaining the degree. The initial regulation of such an individual is external regulation. This external regulation is fully transformed into self-regulation, resulting in what Deci and Ryan (2000) called 'self-determined extrinsic motivation' (p. 236).

Deci, Vallerand, Pelletier and Ryan (1991) discussed the similarity between integrated regulation and intrinsic motivation. Both are forms of autonomous self-regulation. Furthermore, the qualities associated with intrinsic motivation, such as behaving willingly and being creative, can also be used as objective markers to measure the extent to which an extrinsic motivation becomes integrated. However, integrated regulation and intrinsic motivation differ. Although interest in an activity in itself is characteristic of intrinsic motivation, integrated regulation is characterised by the importance of the valued outcome attached to the activity.



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Many studies have linked self-determined motivation to various educational outcomes across age spans and various cultures. Some studies have found that students who have a more self-determined form of motivation in doing schoolwork are more likely to continue their schooling without dropping out than students with a less self-determined motivation (e.g., Vallerand [1991]). Other longitudinal studies such as that by Bouffard, Boileau and Vezeau (2001) have sought to measure the motivational profiles of elementary school children. The next part of this literature review critically analyses the various studies that have explored the link between self-determined motivation and educational outcomes of students. Based on the results and implications of these studies, the review then seeks to formulate the research questions and hypothesis advanced by this thesis.

# It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal Measurement of Extrinsic Motivation Among Primary School Pupils

## Chapter 3 Review of the Child Motivation Literature

The Self-Determination theory and the Organismic Integration theory were described in detail in the previous chapter. Besides having both theories described, the chapter also explored into how these theories can be applied to describe the motivation of children towards their study. Using the self-determination theory and its branch, the organismic integration theory as the theoretical background for this study, Chapter 3 will seek to review and critically analyze the various literatures that have explored the link between self-determined motivation and education outcomes of students. Based on the results and implications of these literature, the review will then seek to formulate the research questions and hypothesis advanced by the thesis.

For more than four decades, researchers have examined the concept of extrinsic and intrinsic child motivation. From Frymier (1970) to Anderman and Maehr (1994), most of these researchers have sought to investigate the effects of externally regulated behaviour such as rewards on the intrinsic motivation of children. Earlier studies held that extrinsic and intrinsic motivation were two opposite and antagonistic concepts and that a manipulation of one type of motivation would affect the other (Frymier, 1970; Harter, 1981; Pallak et al., 1982; Deci, 1975; Lepper et al., 1973; Deci, Koestner and Ryan, 1999; Anderman and Maehr, 1994). However, the establishment of self-determination theory by Deci and Ryan (2000) changed how the concepts of extrinsic and intrinsic motivation were viewed. According to self-determination theory, extrinsic and intrinsic motivation are not antagonistic concepts. Instead, motivation as a whole is a multidimensional concept according to which intrinsic motivation can be enhanced by the satisfaction of the needs for autonomy, competency and relatedness. Meanwhile, extrinsically motivated behaviour varies in terms of the degree to which it is self-determined and can be controlled.

Since the conception of self-determination theory, many studies have explored the concept of self-determined motivation and educational outcomes across cultures and age ranges. Some studies have explored motivation as it relates to academic outcomes and the continuation of education. Although most of these studies have considered the motivation profiles of students based a cross-sectional research approach (e.g., Fortier, Vallerand and Guay, 1995; Eisenberger and Cameron, 1996; Elliot, Hufton, Hildreth and Illushin, 1999;

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Parajes, 2001; Marinak and Gambrell, 2008), some have adopted a longitudinal approach. These longitudinal studies have measured the motivation levels of students as they transition from elementary to high school (e.g., Gottfried, Fleming and Gottfried, 1998; Bouffard, Boileau and Vezeau, 2001). Although these studies have allowed a greater and in-depth understanding of the concept of self-determined motivation among children and the educational outcomes these children have attained, no study has sought to measure the motivation profiles of students as they progress through their primary school years. As children in Singapore spend six years in primary schools, an understanding of the self-determined motivational profiles of children at that stage could allow teachers to better understand how their students' motivation in their studies changes. Understanding the shift in the various motivational profiles of these students could also help teachers to enhance their pedagogical skills in ways that further enhance and sustain the motivation of their students. Furthermore, knowledge of how their students' motivational profiles shift as they progress through their primary school years serves an important aid to teachers. This part of the literature review critically analyses the various studies that have investigated the concept of motivation and self-determination motivation and their implications for the primary and high (secondary) school education fields. Based on the results, the literature review then seeks to formulate the research questions and hypothesis advanced by this thesis.

In his exploration of the concept of motivation in education, Frymier (1970) attempted to formulate a theoretical model of academic motivation in three dimensions. He wrote about academic motivation in terms of how individuals were motivated to learn in an academic setting. According to Frymier (1970), academic motivation can be divided into three dichotomised categories: internal-external, approach-avoidance and intake-output. These categories make educators aware of the types of motivation that characterise their students and demonstrate their positive and negative motivational outlooks. For example, the categorisation of a student as internal-external demonstrates that he or she has a positive outlook in terms of his or her motivation. On the negative side, it can also demonstrate that the student is experiencing excessive anxiety or fear.

The approach-avoidance category also refers to the positive and negative directions of motivation in which a student may move in the presence of external contingencies. For example, whereas a student in the positive approach-avoidance category may establish and

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follow a study routine, a student in the negative approach-avoidance category may talk disruptively during a discussion period. The intake-output category refers to positive academic-related activities such as writing and reading. Frymier (1970) also proposed that these categories could be linked together to demonstrate the positive or negative direction in which a student's academic motivation is heading. For example, whereas a student in the internal-intake-approach-positive category may have a positive motivation in his or her studies, another student in the internal-intake-approach-positive category may have a negative motivation. This categorisation method depends on the behaviour students display in class and how the teachers categorise them. Frymier proposed that there were 16 different facets to academic motivation (ibid, 1970).

Frymier's (1970) study of the dimensions of academic motivation attempted to explore the self-determined behaviour of students in a school setting. It provided good insight into the various categories of student motivation. These categories effectively demonstrated the motivational directions adopted by students in their academic pursuits. However, the proposed model of motivational categories seems overly simplified. Furthermore, the categories that Frymier (1970) proposed (e.g., internal-external-positive) did not specify the precise nature of the types of regulation students may display in class. For example, he stated that students may be described as having a sense of self-worth and a feeling of acceptance (Frymier, 1970 p. 30). Self-determination theory infers that such students have high identified and external regulation scores, indicating that they depend on both identified and external regulation in their motivation to study.

Furthermore, Frymier's (1970) categories do not consider the other types of regulation that may affect student motivation, such as introjected, identified and integrated regulation. The pride that students have in their schoolwork, the importance they attach to their schoolwork and their ability to internalise that pride and perceived importance can affect their motivation in their studies. All of these types of motivation must be addressed when examining the motivational profiles of students.

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In addition, the type of motivation Frymire considered positive may not be a fully integrated form of extrinsic motivation from the viewpoint of self-determination theory. According to self-determination theory, a self-determined behaviour does not simply fit into a category. Indeed, an individual's motivation in a task may shift from highly externalised (external regulation) to highly internalised (integrated regulation) over time. This shift could represent shifts in each of the various types of regulation, such as a shift from a higher level of external regulation to a lower level. Applying self-determination theory to a student's extrinsic motivation, the student's external regulation may shift as he or she moves through his or her primary school years. This shift may occur due to the influence of environmental variables beyond the student's locus of control, such as parental expectations and control versus the student's external regulation (Kim, 2010). Hence, student motivation should be examined in a continuum, where it can be measured if it shifts. This thesis examines shifts in the various types of regulation along the continuum of extrinsic motivation in a primary school setting.

Attempts to measure student's intrinsic and extrinsic motivation in relation to subject mastery in a classroom setting have also taken the form of self-reports. Harter (1981) measured students' intrinsic and extrinsic orientations towards learning and mastery in the classroom using a new self-report scale. She hypothesised that children with an intrinsic orientation in a given domain had a higher feeling of competence and that children with an extrinsic orientation had a lower feeling of competence. Using the self-report scale, she attempted to measure the degree to which a child's motivation to learn in the classroom was determined by his or her intrinsic interest in learning and mastery, curiosity and preference for challenge, in contrast to a more extrinsic orientation of gaining teachers' approval and grades that was dependent on teachers' guidance. The study was conducted based on 3,000 elementary students. Harter (1981) found a shift from extrinsic to intrinsic orientation in terms of the students' reliance on teachers' judgement to perform in the classroom. However, she found that the students' motivation to perform in school became less intrinsic with age. Harter (1981) concluded that one's motivational orientation should be viewed as situation specific rather than a trait-like construct. She also stated that intrinsic interests and extrinsic rewards could work together, in that a child may enjoy challenging tasks and yet view a teacher's approval as an incentive. She claimed that such paradigms required measures that

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could assess intrinsic and extrinsic factors independently to examine the conditions under which extrinsic rewards competed and worked together with intrinsic interests.

Upon closer examination of Harter's (1981) study and especially this claim, it can be inferred that such measures may include exploring the degree to which extrinsically motivated behaviour is internalised. Doing so may reveal how rewards, like a teacher's approval, may act as incentives to promote further interest in a task. This measurement involves exploring the various forms of extrinsically motivated behaviour in a continuum, where external regulation is the most basic form of extrinsic motivation, followed by introjected, identified and integrated regulation. In this continuum of regulation, identified regulation is a form of intrinsic motivation. Furthermore, as the closest form of regulation to intrinsic motivation, integrated regulation is the most apparent form of autonomous self-regulation. However, according to self-determination theory, such interest in a task, however autonomous, is characterised by the valued outcome of the task (i.e., a teacher's praise). When measuring children's motivation levels, the shifts in their external, introjected, identified and integrated regulation should be determined. According to Deci et al. (1991), young children may be unable to achieve 'integrated regulation', as they may be too young to have a sense of it in relation to their schoolwork. In this case, the term 'intrinsic motivation' must be used in place of 'integrated regulation', and the shift in the children's intrinsic motivation must be determined.

In addition, Emde and Harmon (1984), Lerner et al. (1996) and Kagan (1971; as cited in Gottfried, Fleming and Gottfried, 2001) stated that the fundamental issue in establishing a theory, validating a theoretical position, predicting future development and determining significant responses at particular ages is continuity. When studying continuity, stability is an important factor to consider, and longitudinal research is important in assessing an individual's stability over time. Longitudinal research can provide an avenue for determining the link of a construct across age ranges. In determining the shifts in the externally motivated behaviour of young children, longitudinal studies provide a good platform to assess the stability of individual children over time. Hence, Harter's (1981) study could have been made a longitudinal study to assess the continuity and stability of the children's motivational levels in classroom learning. This thesis aims to measure how children's motivation shifts as they progress through their elementary (primary) school years.

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In addition to measuring children's motivation using self-reports, studies have explored how the administration of rewards can influence children's intrinsic motivation. Pallak et al. (1982) hypothesised that the nature of rewards based on the circumstances in which they are administered can influence intrinsic motivation. The controlling aspect of a reward becomes more prominent if the reward is expected. However, the prominence of the informational and controlling aspects may depend on the nature of the reward. Therefore, when two types of rewards, e.g., verbal and symbolic, are equivalent, an expected symbolic reward should undermine intrinsic motivation to a greater degree than an expected verbal reward.

Pallak et al. (1982) conducted an experiment involving 72 pupils across 4 private schools. The children were observed to determine whether an expected or unexpected reward would influence them to continue engaging in an activity they had participated in earlier. It was found that expected praise enhanced intrinsic motivation. Meanwhile, the level of intrinsic motivation demonstrated under the unexpected-praise condition did not differ from that demonstrated under the no-reward control condition. It was concluded that although the specific characteristic of a reward and the context in which it was administered was important, the extent to which intrinsic motivation was affected depended on the children's interpretation of the reward. Furthermore, the meaning of the reward was determined by the nature of the information conveyed and the control exerted on the reward itself. The results of this experiment implied that intrinsic motivation could be enhanced by the presence of an expected reward.

Pallak et al. (1982) concluded that the presence of extrinsically motivated contingencies could affect intrinsic motivation. Other studies have found that both extrinsic and intrinsic motivation are antagonistic (Deci, 1971) and that intrinsic motivation does not depend on any reinforcement, as taking part in the activity is interesting enough (Deci, 1975; as cited in Deci and Ryan, 2000; Lepper et al., 1973). Furthermore, studies have found that the presence of tangible rewards can negatively affect intrinsic motivation (Deci, Koestner and Ryan, 1999).

A closer examination of the term 'intrinsic motivation' as used by Pallak et al. (1982) reveals that it may not be intrinsic motivation in the truest sense defined by Deci and Ryan's (2000) self-determination theory. In their experiment, the type of 'intrinsic motivation' that

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was enhanced by extrinsic rewards (praises) could have been introjected regulation. With an enhanced introjected regulation, the children simply continued drawing (the activity they were asked to perform during the experiment) during the free play period, as their sense of self-worth might have been enhanced by their teachers' praises.

According to Deci and Ryan (2000), individuals engage in intrinsically motivated behaviour with a full sense of volition and without the necessity of material rewards or constraints. In the experiment conducted by Pallak et al. (1982), the presence of externally regulated contingencies or praises showed that the children's behaviour was no longer fully volitional but instead dependent on separable consequences and hence not fully self-determined. Rather than determining whether the presence of external contingencies affected intrinsic motivation, the authors could have determined whether the presence of an externally regulated contingency shifted one's introjected regulation.

In addition, Pallak et al. (1982) considered only a cross-sectional set of children aged 5-7. The authors did not conduct a longitudinal study exploring whether children's motivation changed over time. If the experiment were replicated on the same group of children after they had progressed in age, the children might not have wanted to draw during the free play period given an external contingency. Indeed, there could have been a shift in their regulation and hence their motivation.

Longitudinal studies can measure such a shift in regulation. This thesis seeks to examine this shift and hence children's motivation as they progress through their school years.

Other than measuring how academic motivation can be affected given the presence of external contingencies among children, some studies have examined how children's motivation declines as they progress from elementary to high school. Anderman and Maehr (1994) wrote at length about how students' motivation declined as they transitioned from elementary to middle school. Citing other studies that explored this transition, they summarised that the decline in motivation among middle school adolescents was associated with contextual or environmental factors rather than a function of pubertal changes (Eccles and Midgley, 1989; Simmons and Blyth, 1987; as cited in Anderman and Maehr, 1994;



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Urdan, Midgley and Wood, 1995). In their examination of whether environmental factors caused a decline in adolescents' motivation, Anderman and Maehrer reiterated the finding of Dweck and Leggett (1988), Nicholls (1986, 1989) and Nicholls and Miller (1989) that as students reach adolescence they tend to view ability more as a stable, internal trait rather than one related to effort. Students who are unable to do well academically experience motivational problems within a school context that stresses the importance of relative ability. Anderman and Maehrer added that students seeking to preserve a sense of self-worth and positive self-image avoided acknowledging others' judgements of their incompetence by refusing to study (ibid, 1994).

Anderman and Maehrer (ibid, 1994) also observed that adolescents' motivation could be affected if they experienced failures at school, as they could adopt a schema that defines life goals and tasks in terms of failure. In addition, they observed that the inability of middle schools to meet the individual psychological needs of adolescents could lead to a serious decline in their motivation. They also cited Maehrer's work (1991), which indicated that schools that stressed accomplishment, power, recognition and affiliation could have an increasingly powerful effect on students' motivation as they achieved higher grades. From there, they discussed how motivation research conducted from a social-cognitive perspective could be used to guide schools on how to reform and teachers on how to understand the motivation of middle school students. They concluded their study by discussing the importance of motivation and goal theory in transforming school cultures.

Anderman and Maehrer (1994) provided a detailed discussion of the reasons why adolescents' motivation declined, the importance of recognising this decline and how schools could reform to help these adolescents. From their discussion, one may infer that students' motivation is very much externalised from the perspective of self-determination theory. For example, the authors stated that 'the students in order to preserve a sense of self-worth and positive self-image will avoid the judgement of incompetence by not studying' (ibid, p. 291). According to self-determination theory, self-worth is a partially internalised form of self-determined behaviour known as 'introjection' or 'introjected regulation' (Deci and Ryan, 2000). As such, according to self-determination theory, the term 'motivation' may be considered an extrinsic motivation that provides a range of regulation that applies to middle school students. Anderman and Maehrer's (1994) study could have explored the types of

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regulation students had in elementary school versus after they transitioned to middle school. A more detailed study may determine how the various types of children's regulation, which are found along the continuum of extrinsic motivation, shift as the children progress through their elementary school years. Knowledge of this shift in regulation may help to clarify why motivation reportedly declines when children transition from elementary to high school. Although this thesis does not attempt to measure the shift in regulation of students during this transition, it measures the shift that occurs as students move through their elementary (primary) school years.

Research related to children's motivation in their studies has also tested the structural motivation model of school performance based on the framework established by Deci and Ryan (1985, 1991; as cited in Fortier, Valler and Guay, 1995). In an attempt to test the model using structural equation modelling, Fortier, Vallerand and Guay (1995) proposed three hypotheses based on a study of two hundred and sixty-three French-Canadian Grade 9 students from two Montreal high schools. They proposed that (1) the more students experienced high levels of academic competence, the more they exhibited high levels of autonomous academic motivation; (2) the more students felt self-determined in the school context, the more they were motivated to engage in their education autonomously; and (3) the more students were motivated to engage in their education autonomously, the better their grade performance (p. 262).

Their study established a positive link between perceived competence and autonomous forms of motivation. It also found a significant relationship between academic self-determination and autonomous academic motivation. In addition, it found that students who were highly motivated to engage in their education autonomously achieved high grades in school. The authors concluded that students who were able to obtain higher grades developed an autonomous motivational profile in relation to their education. A student is able to develop such a motivational profile due to the feeling of competency and self-determination he or she experiences in school.

One of the weaknesses of Fortier, Vallerand and Guay's (1995) study was that only two items along the extrinsic motivation regulation continuum were used in the self-determination test taken by the students. It would have been preferable to use all of the items in the

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construct to determine the full extent of the students' level of extrinsic motivation and make their self-determination profiles more complete. Students' levels of external, introjected, identified and integrated regulation should be measured when establishing their self-determination profiles. When a full self-determination profile is obtained, a more precise measurement of the students' autonomous motivation to engage in education may be achieved. In addition, Fortier, Vallerand and Guay's (1995) study did not conduct a longitudinal examination of their students' self-determination profiles. The students' motivation profiles could have changed as they matured over time. A longitudinal study of student self-determination profiles may make it easier to establish how these profiles change over time, and the observed changes may help to explain students' autonomous motivation to engage in education. A longitudinal design should be adopted to provide a reliable estimate of within-person change and variation in the study period (Rast and Hofer, 2014). This thesis seeks to precisely measure the full scale of a student self-determination profile. In addition, it conducts a longitudinal study of a student self-determination profile to reliably estimate how within-person changes and variations affect student motivation. Finally, it measures the changes in a student self-determination profile over a three-year period and examines how it changed and varied over time.

Despite the wealth of studies and empirical evidence related to the detrimental effects of extrinsic motivation on intrinsic motivation and creativity (e.g., Frymlier, 1970; Pallak et al., 1982; Deci et al., 1991; Aderman and Maehar, 1994; Fortier et al. 1995), Eisenberger and Cameron (1996) argued that rewards did not affect and were in fact perhaps beneficial to intrinsic motivation. They also claimed that the negative effects of rewards on task interest and creativity were limited and easily remedied.

In their meta-analytic studies, Eisenberger and Cameron (1996) claimed that studies that found extrinsic rewards to have detrimental effects did so as a result of small differences between control and experimental groups and that the group differences were greatly influenced by the details of how the rewards were administered. They also claimed that quality-dependent rewards led to increased expressed interest in a task and that completion- and performance-independent rewards had no reliable effect. They then stated that rewards should be given for a creative performance rather than a trivial performance in tasks involving a low cognitive effort to prevent them from having a detrimental effect on

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creativity. One can use either a large or small reward to increase generalised creativity, as long as the reward is not too conspicuous. The authors concluded that to improve a performance such as a creative performance, rewards could be used effectively without having a detrimental effect on the intrinsic task interest.

Deci, Koestner and Ryan (2001) rebuked Eisenberger and Cameron's (1996) meta-analysis for being flawed and invalid. In-depth analysis of Eisenberger and Cameron's (1996) work reveals that they did not explore the degree to which the extrinsic reward in their meta-analysis was internalised. According to self-determination theory, extrinsic motivation can vary in terms of the degree to which it is self-determined. In addition, self-determination theory states that as the internalisation process is stalled, the regulations and values attached to enable the completion of tasks remain externalised or partially internalised (Deci and Ryan, 2000). Furthermore, according to self-determination theory, 'intrinsic motivation' involves doing an activity for the sake of interest in the activity itself (Deci and Ryan, 2000). However, Eisenberger and Cameron (1996) did not seem to define intrinsic motivation in the same way. Rather, their definition could have referred to a higher form of extrinsic motivation regulated by rewards. Furthermore, the authors did not divulge whether the circumstances they analysed could be applied to children attending primary schools. How would children's motivation change with the presence of various environmental factors acting as regulations both inside and outside the classroom? The authors also failed to explore whether 'intrinsic motivation', which they claimed was enhanced by rewards, would shift over time. In a classroom scenario, this would necessitate determining whether the presence of rewards led to a shift in the motivation of the children over time. This thesis does not examine the shifts in children's motivation over time in the presence of rewards. However, it does seek to determine whether children's motivation shifts from a more extrinsic form of regulation to a more intrinsic form of regulation over time.

In addition to studies of the effects of extrinsic motivation on intrinsic motivation, a number of studies have explored the effects of environment on intrinsic motivation. The roles of specific stimuli (e.g., novelty, complexity, incongruity, surprise) in fostering intrinsic motivation have been well researched. The optimal challenge of tasks has also been demonstrated to foster intrinsic motivation. In addition, autonomy in the home and classroom environments has been linked with greater intrinsic motivation and autonomy in children

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(Gottfried, 1983, 1986b; Voss and Keller, 1983; Wachs and Gruen, 1982; Csikszentmihalyi, 1988; Deci and Ryan, 1987, 1992; Ginsburg and Bronstein, 1993; Grolnick and Ryan, 1989; Ryan and Stiller, 1991; as cited in Gottfried, Fleming and Gottfried, 1998). Gottfried, Fleming and Gottfried's (1998) longitudinal study of the effects of environment on intrinsic motivation demonstrated this trait of autonomy in children and greater intrinsic motivation. The authors also examined the role of a cognitively stimulating home environment on academic intrinsic motivation in children. They focused on the group of 130 children and their mothers involved in the Fullerton longitudinal study. Their study period began when the children were 8 years old and continued until they were 13 years old.

Gottfried, Fleming and Gottfried (1998) predicted a relationship between academic intrinsic motivation and a cognitively stimulating home environment. They considered the socioeconomic status of the families of the children involved in their study as a general distal variable that did not affect the children directly. The results showed that a cognitively stimulating home environment was a significant and positive predictor of present and subsequent academic intrinsic motivation. Furthermore, the authors found that although social economic status did not bear a direct relation to motivation, it did so indirectly through the home environment. They concluded that parents must expose their children to cognitively stimulating learning opportunities through direct experience, materials and the home atmosphere to facilitate their children's intrinsic motivation at the academic level.

Although the study demonstrated a relationship between a stimulating home environment and enjoyment obtained from learning itself, it did not explore how a stimulating home environment could affect the self-worth of children. It also failed to explore whether a stimulating home environment could influence children's self-worth and even their pride in learning over time. This would have involved measuring whether the children took pride in their learning or felt proud of themselves while learning a subject when their home environments were stimulating and whether this pride improved over time. The study also could have explored the importance the children placed on learning due to the effect of a stimulating home environment over time. Indeed, the importance children place on their studies may improve due to the effect of a stimulating home environment.

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According to self-determination theory, a stimulating home environment can be viewed as a regulation instrumental to separable consequences. The separable consequences comprise taking pride in one's learning, an improvement in one's sense of self-worth through learning and one's recognition of the importance of learning (Deci et al., 1991). From this perspective, learning is not simply an intrinsically motivated behaviour, but also an extrinsically motivated behaviour whose regulation continuum may improve over time due to the effect of a stimulating home environment. Gottfried, Fleming and Gottfried (1998) could have examined whether a cognitively stimulating home environment led to a shift in the children's external, introjected, identified and integrated regulation over time. Although this thesis does not examine the effect of the home environment as a stimulating factor, it does seek to determine whether children's external, introjected, identified and integrated regulation shift as they progress through their primary (elementary) school years.

Elliot, Hufton, Hildreth and Illushin (1999) investigated the effects of culture and environment on the motivation of children in their large-scale study of the attitudes, perceptions and orientations towards academic activities of children aged 14-15 in Sunderland, Kentucky and St. Petersburg. The study concluded that children's effort or ability attributions may be less important in predicting their goal-seeking behaviour. Instead, what are important are the children's familial, peer and cultural perceptions of what constitutes real and meaningful educational achievement and the extent to which such educational achievement is considered of sufficient intrinsic or extrinsic value to evoke significant effort. The authors mentioned Singapore's long-standing cultural emphasis on the importance of education as an essential and instrumental means to an important economic end, and acknowledged the limited vocational future of the children there who lacked sufficiently high qualifications.

Although it may be true that children in Singapore who lack sufficiently high qualifications have a limited vocational future, it is unknown whether they are intrinsically or extrinsically motivated in their schoolwork. If they are motivated due to their need to attain a high level of educational qualifications and expand their vocational futures, it may be said that the students in Singapore are very much externally regulated in terms of educational attainment. Furthermore, the motivation levels of primary schoolchildren before they reach 14 years of age and enter into Secondary 2 is unknown. This raises the following question:

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what shifts in external, introjected and identified regulation and intrinsic motivation do children experience as they progress through their primary school years? A longitudinal study of these primary school students could reveal a stable and continual level of motivation during this progression.

Bouffard, Boileau and Vezeau's (2001) two-year longitudinal study was among the few studies to consider the motivational profiles of students. The authors linked students' motivational profiles to their academic performance as they progressed from elementary to high school. Using a sample of 336 French-speaking students recruited from 9 different public schools in Montreal, the authors had three objectives for their study. The first objective was to examine changes in the students' self-efficacy beliefs in French, the use of subject-related learning strategies and their learning goals after they transitioned from elementary to secondary school in accordance with their Grade 6 achievement level. The second objective was to examine the evolution of the relational pattern of the variables stated in the first objective. The third objective was to compare the relationships between the variables with the students' academic achievements at both the elementary and high school levels (Bouffard, Boileau and Vezeau, 2001, p. 592).

According to the results, all of the students reported a decrement in their self-efficacy beliefs after transitioning from elementary to secondary school. In addition, the students' mastery goals lowered, and there was an increment in their avoidance goals as they transitioned. Next, the students' self-efficacy beliefs and learning goals exhibited stable relationships with their genders and levels of academic achievement at the end of elementary school. Finally, the students' self-efficacy beliefs remained significantly related to their academic performance. All of these results were irrespective of the students' genders and levels of academic achievement (ibid, 2001).

Although the study found a decrement in the students' self-efficacy beliefs and mastery goals and an increment in their avoidance goals as they transitioned from elementary to secondary school, it did not determine how their motivational profiles progressed through their elementary school years. Furthermore, the study did not measure the self-determination motivational profiles of the students or determine how their external, introjected, identified and integrated regulations shifted as they progressed through their elementary school years.

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Studies have replaced the term 'integrated regulation' with 'intrinsic motivation', as it is assumed that students at the primary school level are too young to have achieved a sense of integration in terms of their school activities. Integrated regulation and intrinsic motivation are similar in that they are both forms of autonomous self-regulation. However, the latter term indicates an interest in the activity itself, and the former indicates the importance of the activity to a valued outcome (Deci, Vallerand, Pelletier and Ryan, 1991). Measuring the self-determination motivational profiles of students longitudinally as they progress through their elementary school years may allow a greater understanding of why their self-efficacy beliefs and mastery goals decrease and their avoidance goals increase as they transition from elementary to secondary school.

Investigations of children's motivation have also sought to examine how intrinsic motivation, achievement goals and expectancy can be used to predict optimism in students and how these variables are linked to students' academic achievement. In a cross-sectional study of 529 students attending a public middle school, Pajares (2001) sought to determine the degree to which achievement goals and expectancy value predicted optimism, authenticity and invention. In addition, he tested the connection between positive psychology variables and academic achievement. Pajares (2001) found that 'students whose academic efforts are grounded in love of the work and who prefer tasks from which they can learn, even if they make mistakes along the way, do not require that others validate their academic efforts and do not fear self-censure or the censure of others when errors are made' (pp. 33-34). Pajares then concluded that 'students who value school, who view learning as an end in itself and believe that the purpose of learning is to master ideas and seek personal challenge, and who accompany these beliefs with confidence, positive self-feelings and confidence in their self-regulatory practices also engage the world with optimism and view their accomplishments as merited deserved' (ibid, 2001, pp. 33-34). In other words, he implied that students who were intrinsically motivated in their studies were optimistic in their endeavours and felt proud about the effort they put into their work.

Deci et al. (1991) observed that integrated regulation bore some relation to intrinsic motivation, as both were forms of autonomous self-regulation. Pajares's (2001) study did not reveal whether the students examined were truly intrinsically motivated in their studies or



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merely had high levels of integrated regulation. Such high levels of integrated regulation indicate a highly autonomous form of extrinsic motivation. As such, students with high levels of identified and integrated regulation may also score well in terms of optimism and feel accomplished in the effort they put into their work. This may also imply that the various forms of extrinsic motivation distinguished by self-determination theory are related to optimism and feelings of accomplishment.

In addition, Parajes's (2001) study was a cross-sectional study of how students' motivation relates to their optimism and academic achievement. A longitudinal study would have obtained more comprehensive data about how the students' motivation related to their optimism and feelings of accomplishment. If forms of extrinsic motivation in students do indeed relate to their levels of optimism and accomplishment, then a longitudinal study of these forms of motivation should be conducted, as knowledge of such relationships would help educators to find appropriate ways to motivate their students. This raises several questions. What levels of external, introjected, identified and integrated regulation do students adopt as they progress through their school years? What levels of optimism, authenticity and invitation do they adopt? To what degree do these regulations predict optimism, authenticity and invitation? How are the positive psychology variables related to extrinsic motivation? This thesis does not explore how extrinsic motivation is related to optimism and feelings of accomplishment. However, it does seek to determine how forms of extrinsic motivation in students shift as they progress through their primary (elementary) school years.

Although investigations of the intrinsic motivation of students in their studies have taken on many dimensions, longitudinal studies of the academic intrinsic motivation of students have rarely been conducted. To examine the stability and continuity of academic intrinsic motivation, Gottfried, Fleming and Gottfried (2001) conducted a longitudinal study of 130 individuals in their middle elementary to high school years. The authors hypothesised that academic intrinsic motivation was a stable construct from childhood through late adolescence, that it became increasingly stable over time and that its mean level declined from childhood through late adolescence.

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The authors assessed the academic intrinsic motivation of the participants in their study at ages 9, 10, 13, 16 and 17. Their results showed that academic intrinsic motivation was a stable construct from childhood through adolescence and that it became increasingly stable over time. They also found that academic intrinsic motivation declined significantly from middle childhood through late adolescence. However, academic intrinsic motivation appeared to stop declining by age 16, and there was a slight increase in academic intrinsic motivation. Gottfried, Fleming and Gottfried (2001) suggested that the decline in student motivation over the years might have resulted from the adverse effects of extrinsic consequences on intrinsic motivation and increasingly controlling school environments. They concluded that motivational assessments should be carried out during a child's elementary school years so that his or her strong and weak areas of academic intrinsic motivation could be determined and appropriate educational planning could be implemented early on in his or her education to increase the strong areas and decrease the weak areas.

Gottfried, Fleming and Gottfried's (2001) claim that extrinsic consequences could have led to the decline in the children's academic intrinsic motivation over time implied that, based on self-determination theory, the children might not have internalised and integrated the regulation of learning within themselves over time. This means that the children were not engaging in learning with a full sense of volition and would not do so without material constraints or rewards as they progressed from elementary to high school. However, extrinsically, these children might have scored high in terms of the regulatory styles that fell along the autonomy continuum, which would have portrayed the extent to which their learning had been internalised and integrated. This means that the children might have scored high on external regulation and low on introjected, identified and integrated regulation as they progressed from elementary to high school (Deci et al., 1991).

Such a self-determination motivational profile for children can only be established by measuring it longitudinally as the children progress through their primary school years. Knowledge of how students' motivation levels shift as they progress through their primary (elementary) school years would allow a better understanding of why their academic intrinsic motivation levels decrease significantly from middle childhood to late adolescence. Educators could use the knowledge gained from this shifting pattern to take action and

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remediate the drop in motivation level at an earlier age. As such, this thesis aims to gain knowledge related to the motivation profiles of children at the primary (elementary) school level so that the shift pattern can be better predicted as children progress to the secondary school level. In addition, knowledge of this shift in motivation levels would allow educators to take remediate action to improve or maintain them.

Margolis and McCabe (2004) wrote at length on the topic of how the motivation of struggling learners could be improved. They claimed that many struggling learners resisted studying because they believed they lacked the ability to succeed due to a lack of high self-efficacy. It is widely believed that struggling learners with a sense of high self-efficacy do not make the effort to master their studies and give up or avoid tasks at which they failed previously. Margolis and McCabe (2004) suggested that teachers had to provide extrinsic age-appropriate reinforcers to motivate struggling learners until they became interested in their work and developed a strong, sustaining belief that they could succeed with moderate effort. They also stressed the importance of improving the self-efficacy of these learners. They claimed that strengthening the self-efficacy of these learners would eliminate their resistance to schoolwork and that teachers could take the opportunity to reinforce effort and persistence. They concluded that by improving the self-efficacy of struggling learners, teachers could increase the likelihood of these struggling learners becoming more motivated, involved and persistent in their work and hence becoming successful learners.

The suggestion that teachers could give age-appropriate extrinsic reinforcers to struggling learners implies that struggling learners may be very much externally regulated. Furthermore, as mentioned by Margolis and McCabe (2004), according to self-determination theory, improving the self-efficacy of struggling learners in a way that allows them to become more motivated is part of an internalisation process. This is a process in which one transforms regulation by external contingencies into regulation by internal processes (Schafer, 1968; as cited in Deci et al., 1991). According to self-determination theory, self-efficacy as a form of regulation is represented by introjected regulation. This form of regulation is found in the self-determination continuum at a higher level than external regulation. Margolis and McCabe (2004) posited that struggling learners could improve their motivation and become more involved and persistent in their work by improving their self-efficacy. This infers that struggling learners can have their motivation level improved along

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the continuum of extrinsic motivation from external to introjected, identified and perhaps integrated regulation.

Before struggling learners can have their motivation level improved, their level of extrinsic motivation must be measured. This would allow teachers to know how these struggling learners score on their external, introjected, identified and integrated regulation. If the children are struggling learners, integrated regulation is replaced by intrinsic motivation. From there, teachers can determine the appropriate external contingencies to take to improve the motivation of these learners.

However, the motivation of these struggling learners should be viewed as a continuation across a timeframe so that it can be understood more thoroughly. Understanding their students' motivation can allow teachers to select age-appropriate external contingencies across a timeframe and further improve that motivation. As such, a longitudinal study of how the motivation of struggling students has developed over time should be conducted. Gottfried, Fleming and Gottfried (2001) mentioned that longitudinal research was essential for understanding development and assessing stability over time. Due to the presence of external contingencies, such a level of motivation remains very much extrinsic no matter how high. As the students targeted by this thesis comprise different types, a longitudinal study is conducted to ascertain how the students' various types of regulation have shifted along the extrinsic motivation continuum over time. It is hoped that determining these regulation shifts may inform teachers of the appropriate contingencies to take to maintain or improve children's motivation further.

Lepper, Corpus and Iyengar (2005) came close to exploring the various forms of extrinsic motivation among students. Using Harter's (1981) scale, they aimed to examine the relationship between intrinsic and extrinsic motivation and children's academic behaviour, the age differences in extrinsic and intrinsic motivation when the two constructs were measured independently of each other, the relationship between motivational orientation and academic outcomes and the ethnicity differences in motivation between European American and Asian American children. The study involved 797 students in Grades 3-8 attending 2 public districts located in the San Francisco Bay area of California. These students comprised

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Asian Americans, Caucasians, African Americans, Hispanics and children from other ethnic groups.

The study found that intrinsic and extrinsic motivation could and did coexist in the classroom. When measured separately, the two types of motivation were moderately correlated. The authors concluded that both intrinsic and extrinsic motivation represented somewhat orthogonal dimensions of motivation rather than opposite ends of a single dimension. They also found that although intrinsic motivation declined across all of the grade levels, extrinsic motivation changed very little. Furthermore, they discovered a lack of significant difference in motivation in terms of both ethnicity and sex.

As Lepper, Corpus and Iyengar (2005) conducted a cross-sectional study of the motivation of students in Grades 3-8, their results captured the motivation levels of the students only at those points in time. Their study did not explore whether the motivation of the students became internalised over time. A number of studies have demonstrated that students' motivation declines as they transition from elementary to middle school (e.g., Haladyna and Thomas, 1979; Prawat, Grissom and Parish, 1979; Anderman and Maehr, 1994; Bouffard, Boileau and Vezeau, 2001). Lepper, Corpus and Iyengar (2005) also addressed this issue. They concluded that they failed to address the development of internalised motivation, i.e., originally external motives that became incorporated into one's personal goals or system over time. It is important to consider how extrinsic motivation has shifted from a form in which the locus of initiation of an activity is external to a student to a form in which the activity is valued by and important to the student. According to self-determination theory, exploring the development of this form of motivation requires studying how the extrinsic motivation of students has shifted from a highly externalised form of regulation to a more advanced form of extrinsic motivation.

Lepper, Corpus and Iyengar (2005) did not conduct a longitudinal study of the shift in student motivation. According to self-determination theory, student motivation, no matter how advanced, remains at the level of integrated regulation and does not cross over into intrinsic motivation. Although integrated and intrinsic motivation are similar, integrated regulation is characterised by the importance of the activity due to a valued outcome and intrinsic motivation is characterised by the interest placed in the activity itself (Deci et al.,

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1991). Using the self-determination continuum, this thesis addresses Lepper, Corpus and Iyengar's (2005) failure to measure the shift in extrinsic motivation of students at the primary school level over time.

Many studies have repeatedly observed declines in students' motivation as they progress through elementary and high school. However, no study has observed how the motivation levels of students have shifted as they progress through their primary school years. Otis, Grouzet and Pelletier (2005) commented that these studies have either focused exclusively on intrinsic motivation or defined intrinsic motivation as the opposite of extrinsic motivation. As a result, these studies have not assessed extrinsic and intrinsic motivation independently. The authors also commented that these studies have used only cross-sectional statistical techniques and failed to assess intra-individual changes. Finally, they also commented that researchers, who have treated declines in motivation as negative consequences that should be avoided due to their negative association with the successful pursuit of education, have failed to examine whether actual motivation levels have declined. Otis, Grouzet and Pelletier (2005) felt that an approach to measuring motivation should be a dynamic attempt, as it is closer to the reality of school transition.

In an attempt to measure changes in the intrinsic and extrinsic motivation of children as they transition from junior to senior high school, Otis, Grouzet and Pelletier (2005) investigated the patterns of change in each of the forms of motivation according to self-determination theory in a longitudinal study during the intervals between Grades 8 and 9, Grades 9 and 10 and Grades 8 and 10. Their data collection process took place over three consecutive years and involved six hundred and forty-six students as participants. These children were measured in terms of their exhibited changes in external, introjected and identified regulation; intrinsic motivation; and amotivation.

The results of their study revealed a significant decline in all forms of extrinsic motivation (i.e., external, introjected and identified regulation) and intrinsic motivation over the transition to high school. There were additional declines in all of these forms of motivation between the first and second years of high school. Amotivation increased after the transition to high school, decreased during the second year of high school and then returned to its initial level. The authors concluded that there was a steady decline in academic extrinsic

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and intrinsic motivation as children transitioned from junior to senior high school. Furthermore, students experiencing a decline in external regulation experienced less of an educational adjustment and a decline in both intrinsic motivation and identified regulation during the year after the transition.

Although the study by Otis, Grouzet and Pelletier (2005) explored intra-individual motivational changes over time, it did so for children with mean ages of 13, 14 and 15 years at the junior school level who were transitioning into senior high school. Translating this level of education to the educational scene in Singapore would mean exploring the intra-individual motivational changes of children at the Secondary 1-3 levels. However, the questions that arise here relate to children's motivation levels during their primary school years. What are their intra-individual motivational changes as they progress through their primary school years? What shifts do the children experience in their external, introjected, identified and integrated regulation during this progression? This thesis explores these aspects of the intra-individual motivational changes in children.

In another study of the effects of school transition on students' intrinsic motivation, Remedios, Ritchie and Lieberman (2005) observed the effects of examinations on the intrinsic motivation of a group of 10- and 11-year-old students as they took a 'Transfer Test' for admission to a grammar school in Northern Ireland. Their study sought to establish whether the motivation of the students taking the transfer test was higher or lower than that of the students who did not take the test. In addition, it sought to establish the motivation and interests of the students after they had taken the test. Finally, the authors expected the students who were taking the transfer test to have less of an intrinsic interest in their subjects than the students who did not take the test.

The results revealed that before the transfer test there was no significant difference in motivation between the students who took and did not take the test. However, the motivation of the students who took the test decreased significantly afterwards compared with that of the students who did not take the test, although most of these children achieved the grades necessary for admission to the grammar school. Based on these results, the authors concluded that the examinations might have decreased the motivation of the students in the subjects they had studied in preparation. However, they could not conclude whether the decline in

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motivation was long term or temporary. They added that although obtaining low grades could have affected the self-worth and competency feelings of the students, they could not determine whether repeated examinations had undermined their motivation to engage in the subjects they studied (ibid, 2005).

Although examinations can affect the intrinsic motivation of students, it is unknown whether the students who took the transfer test had high levels of extrinsic motivation. Remedios et al. (2005) explained that the students who were expecting to sit for the exams actually looked forward to the challenge. Upon performing well on the transfer test, the students might have felt proud of their achievement and experienced an improved sense of self-worth. If so, it can be inferred that the students had a high sense of introjected regulation. Remedios et al. (2005) also speculated that cognitive dissonance could have set in among the students in a way that allowed them to convince themselves to be interested in studying subjects they actually found disinteresting. The need to 'convince oneself to be interested' could have acted as an external regulation, with students regularly reminding themselves of the need to be interested to perform well on the transfer test and gain admission to the grammar school. As indicated by self-determination theory, the components of the various types of regulation along students' extrinsic motivation continuum should be measured. Doing so would allow a better understanding of how examinations can affect students' external, introjection, identified and integrated regulation. An understanding of students' regulation may shed light on the extent to which they are autonomous or self-determined in their studies.

In addition, it is unknown whether the students' loss of motivation was only temporary or that examinations did indeed have long-term effects on their motivation. Furthermore, it remains uncertain whether the examinations that students take as they progress through their elementary school years have any effect on their motivation. Given this uncertainty, a longitudinal study should be conducted to explore the implications of examinations for students' motivation over time. Shifts in students' intrinsic motivation; self-determined behaviour; and external, introjected, identified and integrated regulation over time should be examined.



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The students considered in this thesis were 10 years of age and taking examinations as they progressed through their primary school years. It is unknown whether their motivation was affected due to repeated examinations over time. Hence, this thesis examines the shift in these students' motivation as they progressed through their primary school years. However, rather than focus on the intrinsic motivation of the students, it instead aims to measure the shifts in regulation along the students' extrinsic motivation continuum during the progression. Armed with this knowledge, teachers may take remediating actions to maintain and further enhance their students' motivation. This thesis considers whether the various types of regulation along students' extrinsic motivation continuum shift as they progress through their primary school years, an area other studies have not yet covered.

In addition to the study of the effects of examinations on the intrinsic motivation of primary school pupils, one investigation looked at the motivation of university students as they advanced through their degree programmes. In their study of more than 1,000 students attending a Scottish university in years 1, 2, 3 and 4 of their degree programmes, Lieberman and Remedios (2007) attempted to determine whether students' motivation changed as they advanced through their programmes.

The results of their study revealed significant differences in the students' motivation in different years of study. The students' desire to understand or master their subjects declined significantly after their first year and remained low in subsequent years. The students' expectations that they would be interested in or enjoy their courses also decreased. Furthermore, the students' desire to understand their subjects decreased rather than increased over time.

Although Lieberman and Remedios (2007) gave a number of explanations for these results, none were conclusive. They speculated that the decline in student motivation could have been attributed to poor teaching at the university. However, this speculation was invalid. They also speculated that the students entered university with unrealistically high expectations of how enjoyable their studies would be, only to adjust those expectations when confronted with reality. However, this speculation was not persuasive. Finally, they speculated that the students did not find their courses as interesting as expected and therefore became less motivated to learn the material. The authors concluded that they did not know

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how the students' motivation would change over the long term and recommended that longitudinal research in the area of motivation be conducted to determine whether the pressure of grades really undermined intrinsic motivation.

Although Lieberman and Remedios (2007) demonstrated that the students' intrinsic motivation decreased as they progressed in their degree programmes, they did not consider the changes that might have occurred in the students' extrinsically motivated regulation. If the pressure of grades did lead to a decline in the students' intrinsic motivation, then perhaps the shifts in their level of external regulation should have been measured. An understanding of how the students' external regulation shifted would have clarified how well they internalised the pleasure derived from studying in their degree programmes. In addition, the various extrinsically motivated regulations as stated in the students' self-determined continuum could have been measured. A longitudinal study could have been conducted to determine whether the students' regulations shifted over time. In fact, such a study could focus on primary school students to ascertain the extent to which the internalisation and integration processes proceed as the students progress through their primary school years. Such a longitudinal study would seem appropriate, as Schunk (2000) pointed out that longitudinal investigations could provide... 'insights into motivation from a different window and the results would have useful implications for teaching and learning (pp. 118-119; as cited in Lieberman and Remedios, 2000, p. 392). Knowledge of how students' internalisation and integration processes proceed as they progress through primary school may provide a good prediction of how the processes may shift as the students progress to secondary school. In addition, it may shed light on why Lieberman and Remedios (2000) arrived at their results. Hence, this thesis investigates how the various types of regulation along students' extrinsic motivation continuum shift as they progress through their primary school years. It is hoped that this knowledge may help to predict future trends in students' motivation as they progress through their secondary and post-secondary years.

Studies have also explored the motivation of gifted students. Phillips and Lindsay (2004) qualitatively investigated the factors that influenced the role of motivation in gifted students and particularly how extrinsic and intrinsic motivation played a part in the students' behaviour. The authors interviewed 15 gifted students comprising boys and girls aged 14 and 15 years. The results of the interviews indicated that the students' motivation was both

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extrinsic and intrinsic in nature. The students enjoyed learning and studied for their examinations to pursue and achieve good results. Furthermore, evidence suggested that all of the students were competitive and some were strongly competitive. They expressed the enjoyment they experienced in achieving rewards and recognition for their achievements. This finding pointed to a high degree of extrinsic motivation in the students' learning and activities.

According to self-determination theory, these gifted students would have scored high on external regulation given that they studied to pursue good results on their examinations. They also would have scored high on introjected regulation given that they expressed enjoyment in obtaining recognition for their achievements, and probably would have scored high on intrinsic motivation given that they reportedly enjoyed learning. However, a number of questions arise from Phillips and Lindsay's (2004) investigation and the inference of these hypothetical scores from the perspective of self-determination theory. Were the extrinsic and intrinsic motivations of these students the same during their elementary school years? If these motivations shifted over time, what was the shift? Several more in-depth questions also arise. What were the external, introjected, identified regulations and intrinsic motivation scores of these students during their elementary and high school years? Did they shift over time? The children involved in the current thesis had mixed learning abilities. Therefore, it was deemed appropriate to investigate the shifts in the students' external, introjected and identified regulation and intrinsic motivation as they progressed through their primary school years.

In addition to exploring the effects of intrinsic and extrinsic motivation, the motivational profiles of the students were also investigated in detail based on self-determination theory as part of the study's theoretical background. Three studies conducted by Ratelle, Guay, Vallerand, Larose and Senécal (2007) sought to discover the various motivational profiles that naturally occurred among samples of university and high school students. In addition, they aimed to verify how the students grouped under these profiles differed in terms of their academic adjustment variables and to test how each profile related to the students' academic outcomes. The authors hypothesised that students with high levels of intrinsic motivation and identified regulation would display an autonomous profile and low levels of introjected and external regulation. The authors also hypothesised that students with low levels of intrinsic motivation and identified regulation along with moderate to high

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levels of introjected and external regulation and amotivation would display controlled profiles. They predicted that students with high levels of intrinsic motivation; identified, introjected and external regulation; and amotivation would report combined profiles. Finally, they predicted that female students would have autonomous and combined profiles, and observed that male students were likely to develop controlled profiles.

Study 1 considered 4,498 high school students from Montreal. Girls reported higher levels of intrinsic motivation and identified and introjected regulation. They also reported lower levels of external regulation and amotivation. Furthermore, most of the students had motivational profiles that combined equivalent levels of autonomous and controlled motivation. The profiles that combined both high levels of autonomous and controlled motivation appeared adaptive, as students with such high levels of controlled motivation experienced the most positive academic outcomes. Girls had the most adaptive motivational profiles, and boys mostly exhibited controlled profiles, which best predicted school dropout (Ratelle et al., 2007)

Study 2 considered 942 high school students from the Quebec City area. Its results were similar to those obtained in Study 1. Study 2 found that boys were less autonomous at school and achieved less than girls. Most of the students had motivational profiles with equivalent levels of autonomous and controlled motivation at either moderate or high levels. One third of the students had high autonomous or high controlled motivational profiles and few students reported a maladaptive, controlled motivational profile (ibid, 2007).

Study 3 examined 410 first-year university students. Its results were slightly different from those of Studies 1 and 2. Although women were more autonomous and had higher grades than men, three different motivational profiles were obtained: a high autonomous/high controlled profile, a low autonomous/low controlled profile and an autonomous motivational profile (ibid, 2007).

These results clarified the motivational profiles of both boys and girls and might have helped educators to better plan their lessons and cater to the motivational needs of their students. However, the studies were carried out with three different groups of people, including two groups of high school students and one group of university students. It is

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unknown whether the motivational profiles of elementary school children are similar to those of high school and university students. It is also unknown whether the motivational profiles of students change as they progress from elementary to high school and then on to university. Rattle et al. (2007) identified this limitation of their study. They claimed that their study lacked a longitudinal assessment of motivation, and that future research should examine the motivational profile of a single sample over time to assess its stability.

For the sake of further clarification, a longitudinal study of primary school students' motivational profiles should be carried out to demonstrate a trend in how students' motivation shifts as they progress into high school and perhaps university. Such a study may allow educators to adjust their lesson delivery and cater to students' motivational needs. Although this thesis does not assess the motivational profiles of high school or university students, it assesses the motivational profiles of primary (elementary) school students. To determine the temporal stability of these students' motivational profiles, it examines the students' motivational profiles as they progress through their primary (elementary) school years via a longitudinal study.

In addition to examining the motivation profiles of high school and university students, studies investigating student motivation have considered the micro issues associated with between-subject studies with a focus on science. Lavigne, Vallerand and Miquelon (2007) proposed the establishment of a motivational model that considered the roles of science teachers and students' motivation to study science and influence students' decision to pursue a scientific education and eventually pursue a career in the field. They believed this model would allow an understanding of the social factors that influenced students' motivation and intention to pursue studies and careers in the scientific field. The model hypothesises that the level of autonomous supportive behaviour from science teachers influences students' satisfaction with their basic human needs for a self-perception of their own autonomy and competence in science classes. These self-perceptions are hypothesised to have a direct influence on students' motivation to study science. Finally, the model proposes that the more self-determined the students' motivation to study science, the more likely they are to pursue scientific study and eventually work in a scientific field.

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The model was tested on 728 Grade 10 French-Canadian students with a mean age of 15.14 years recruited from 3 public high schools in Montreal. The study of the model sought to measure the intrinsic motivation; identified and introjected regulation; and amotivation of the students in relation to their persistence in pursuing a science education. In addition, it sought to measure the teachers' perceived autonomy, the students' perceived competency in science and the students' autonomy as it related to their intention to pursue a science education in the future.

The results of the study revealed that students with high intentions to pursue science perceived their science teachers as supporting their sense of autonomy more often than students with low intentions. Furthermore, students with high intentions to pursue science perceived themselves as more autonomous and more competent in science than students with low intentions. The results of the study implied that teachers who promoted the autonomy of their students also increased their perceptions of competence in scientific subjects. In addition, the more the students perceived themselves as autonomous and competent, the more self-determined their motivation became.

Lavigne, Vallerand and Miquelon (2007) observed a limitation of their study, in that its design was correlational in nature and no causal conclusions could be drawn from analysis. This limitation affected the result that students with high intentions to pursue science perceived their science teachers as supportive of their sense of autonomy more often than students with low intentions. The teachers' sense of autonomous support might have influenced their students' intentions to pursue science. The results table indicated that the students with high intentions scored higher on identified introjection ( $M = 5.51$ ) than on introjected regulation ( $M = 4.39$ ).

If the teachers' sense of autonomy indeed influenced their students' intentions to pursue science, then the teachers' sense of autonomy acted as an introjected regulation and led to a high identified regulation score, as seen from the results gathered from students with high intentions. The students might have experienced a sense of the importance of doing well in science classes as a result of the teacher giving them the freedom to perform. According to self-determination theory, this implies that the students were very much driven by externally regulated forces to improve their interest in science. However, this implication remains

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inconclusive in the absence of a full motivational profile of the students. Such a profile would include an examination of the students' level of external regulation and measurements of their identified and introjected regulation; intrinsic motivation; and amotivation in relation to science.

Furthermore, it is unknown whether the students' motivational profiles in science shifted as they progressed through their school years. This knowledge can only be gleaned through a longitudinal study measuring the shift, and such a measurement would provide good insight into the stability of the students' motivation in their studies.

In addition to examining the between-subject motivation among young children, motivation studies have examined how extrinsic rewards and reward proximity can enhance the intrinsic motivation of young children to engage in reading. Marinak and Gambrell (2008) explored the effects of rewards and their proximity on the intrinsic reading motivation of Grade 3 students. The authors hypothesised that offering a reward that was proximal to the desired behaviour would mediate the undermining effects of extrinsic rewards. Furthermore, they hypothesised that the choice of reward could enhance the intrinsic motivation to read.

Marinak and Gambrell (2008) based their study on 75 Grade 3 students in a mid-Atlantic suburban school district. Their investigation found that students who were given proximal rewards or no reward were more motivated to engage in subsequent reading than students who received less-proximal rewards. Their findings suggested that the proximity of a reward to the desired behaviour was a particularly salient factor in enhancing the motivation to read. They established three conclusions based on their results. First, when extrinsic rewards such as books are offered for reading, they undermine the intrinsic motivation to read less than rewards that are less proximal to reading. Second, tokens offered as extrinsic rewards undermine the intrinsic motivation to read more than rewards that are more proximal to reading. They also undermine the intrinsic motivation more than rewards that are provided. Finally, although a number of findings have demonstrated that the choice of rewards is a powerful aspect of intrinsic motivation, it was not found to be a salient factor in this study. The authors stated that the choice of a book or a token did not enhance or undermine subsequent reading motivation.

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A closer examination of the results of Marinak and Gambrell's (2008) study reveals that their students' motivational profiles were unknown at the time of study. Extrinsic rewards led to an increase in the intrinsic motivation to read, implying that the students were externally regulated. However, reward proximity (the offering of books instead of tokens) led to an increase in the intrinsic motivation to read, implying that the students might have scored high on identified regulation. As these students might have known of the importance of reading, the reward of books could have enhanced their intrinsic motivation to read. However, the students could have scored high on both external and identified regulation. Although they might have known of the importance of reading, they might have required rewards such as books to enhance their intrinsic motivation to read. Marinak and Gambrell (2008) reported that the poverty levels of the schools from which the results of the study were obtained ranged from 18% to 25%. As such, the students might not have been able to afford books to read despite knowing of the importance of reading. The extrinsic reward of books might have acted as a catalyst to improve the students' intrinsic motivation to read. Marinak and Gambrell (2008) also failed to explore whether the students' motivation levels would change as they progressed through their school years, particularly as they entered Grades 4 and 5. A longitudinal study measuring students' motivational profiles and motivation to read in the presence of rewards may clarify their intrinsic motivation to read. Although this thesis does not measure the motivation of students to read, it explores how the motivational profiles of children change as they progress through their elementary school years. Knowledge of this change in the motivational profiles of students should allow a better understanding of whether the offering of proximal rewards is important in improving the intrinsic motivation of children to engage in an activity.

Other than investigating the effect of reward proximity on the motivation to read, studies have longitudinally explored students' intrinsic and extrinsic reading motivation, reading amount and reading literacy. Becker, McElvany and Kortenbruck (2010) conducted such a longitudinal investigation of 740 students attending 22 Berlin elementary schools, where they tracked the students' reading development from Grades 3 to 6. The study aimed to examine how reading amount and literacy were associated with intrinsic and extrinsic motivation. In addition, it sought to determine the bidirectional relationships between reading motivation and literacy.



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Becker, McElvany and Kortenbruck (2010) hypothesised that intrinsic motivation at the Grade 4 level would positively predict reading literacy at the Grade 6 level, and that this association would be mediated by reading amount at the Grade 4 level. They also hypothesised that reading literacy at the Grade 3 level would influence reading motivation at the Grade 4 level. They explored the relationship between extrinsic reading motivation at the Grade 4 level and reading literacy at the Grade 6 level. Furthermore, they analysed whether the mediating effect of reading amount could be detected for extrinsic motivation. They also investigated whether the effects of intrinsic/extrinsic reading motivation and reading amount at the Grade 4 level on reading literacy at the Grade 6 level would persist when reading literacy at the Grade 3 level was included as a predictor of all of the constructs in the model.

The results of the study revealed that intrinsic reading motivation at the Grade 4 level was positively related to reading literacy at the Grade 6 level and that the relationship was mediated by reading amount. In addition, there was a high stability of reading achievement from Grades 3 to 6. The negative relationship between extrinsic reading motivation at the Grade 4 level and reading literacy at the Grade 6 weakened but remained statistically significant. In addition, reading at the Grade 3 level negatively predicted extrinsic motivation at the Grade 4 level, which was negatively related to reading literacy at the Grade 6 level. The authors concluded that reading amount was strongly determined by the level of the individual's intrinsic motivation and to a certain degree by prior reading literacy. However, extrinsic reading motivation had no significant additional effect.

Although Becker, McElvany and Kortenbruck (2010) highlighted the importance of intrinsic motivation and reading amount and the relationship between extrinsic motivation and reading literacy for students as they progressed through their elementary school years, they did not explore the mediating relationship between extrinsic motivation and reading literacy. They identified the paucity of research related to the mediating relationship between extrinsic motivation and reading literacy as a limitation of their study that prevented the students' initial extrinsic motivational profile from being determined. It is unknown what caused the negative relationship between extrinsic motivation and reading literacy. It is also unknown whether the extrinsic motivational profile of the students shifted as they progressed through their school years. The students might have been highly externally regulated at the Grade 3 level. This external regulation might not have shifted, and the lack of reward at the

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Grade 4 level might have led to poor reading skills as the students progressed through Grade 6. The children might have been extrinsically motivated because they read to achieve a sense of pride, and when they experienced unpleasant reading experiences their sense of pride might have decreased, leading to poorer reading skills and an avoidance of reading.

A shift in students' extrinsic motivational profiles can have an effect on their reading amount and literacy. Although this thesis does not explore the reading amount and literacy of students in relation to their motivational levels, it does explore the extrinsic motivational profiles of the students as they progress through their primary school years. An understanding of such profiles may clarify the mediating relationship between extrinsic motivation and reading literacy.

Studies of child motivation have also investigated the intrinsic and extrinsic reading motivation of very good and very poor readers. McGeown, Norgate and Warhurst (2012) aimed to examine the relationship between reading skill, motivation and efficacy in children with excellent or very poor reading skills. They also aimed to investigate any differences in their levels of intrinsic and extrinsic motivation. They hypothesised that good readers would have higher levels of intrinsic motivation and reading efficacy than poor readers. They also predicted that the groups would not differ in their levels of extrinsic motivation. Furthermore, they predicted that intrinsic motivation would correlate with reading skill in both very good and very poor readers. Finally, they predicted that extrinsic motivation would correlate with the reading skills of good readers if coupled with high levels of intrinsic motivation.

The results of the study showed that the reading skills of very good readers were not significantly associated with intrinsic reading motivation. However, variations in the children's reading skills were significantly correlated with their extrinsic motivation, particularly in terms of grades and competition. As for poor readers, their reading skills did not correlate significantly with any dimension of motivation.

The children's readings skills could have varied because they were externally regulated in their motivation. Along the continuum of extrinsic motivation established by self-determination theory, these children could have scored well on introjected and identified regulation. A sense of self-worth or a sense that reading was important could have improved

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the children's reading skills. It is unknown whether the very good readers did indeed read for the personal enjoyment of reading or whether it was a sense of pride that led them to improve their reading skills and become very good readers. As for the poor readers, it is unknown whether their amotivation and hence reading skills failed to correlate significantly with any dimension of motivation. The level of motivation of the children could not be determined without collecting a motivational profile outlining their external, introjected and identified regulation. As they were too young to have a sense of integration, their integrated regulation motivation profiles were replaced by intrinsic motivation. However, in this case, the children's intrinsic motivation remained very much externally regulated, as the behaviour it directed was instrumental rather than autotelic.

McGeown, Norgate and Warhurst's (2012) study of the children's motivation in relation to their reading skills was cross-sectional. It is unknown whether the children's motivation profiles would have changed as they progressed through their school years. Such a shift in their motivation profiles might have had implications for their reading skills, reading motivation and efficacy. As such, a longitudinal study exploring such a shift should be conducted to further clarify children's reading skill, motivation and efficacy.

In an attempt to examine young elementary students' motivation across school subjects based on self-determination theory, Guay, Chanal, Ratelle, Marsh, Larose and Boivin (2010) tested whether children self-reported different levels of intrinsic, identified and controlled motivation in specific school subjects such as writing, mathematics and reading. They also tried to verify whether the children self-reported differentiated types of motivation across school subjects. The study involved 425 French-Canadian children in Grades 1-3 from 26 classrooms. The results revealed that students differentiated between intrinsic motivation, identified regulation and controlled regulation in reading. In addition, the correlations between proximal motivations (intrinsic and identified regulation, identified and controlled regulation) were generally stronger than those between distal motivations (intrinsic motivation and controlled regulation) for reading. Furthermore, there was less support for the self-determination continuum in maths and writing, and students ultimately differentiated between types of motivation across school subjects. Guay et al. (2010) found that within-school-subject differentiation was more apparent in older than younger elementary schoolchildren, especially for reading. They also found that between-school-subject

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differentiation was clearer for older students, and that this was especially true for intrinsic motivation.

Guay et al. (2010) highlighted the importance of distinguishing between the different types of motivation in specific school subjects during the early elementary years. However, they did not explore whether these motivation levels as self-reported by the children would have shifted as they progressed through their elementary school years. Furthermore, the effects of examinations could have caused the motivation levels in these subjects to shift. The direction of the shifts in all of the motivation levels along the self-determination continuum remains unknown. Remedios, Ritchie and Lieberman (2005) observed that cognitive dissonance could have set in among the children due to the effects of examinations. Although the children might not have been motivated in their studies, due to the pressure to perform well on examinations, they might have 'forced' themselves to like the subjects instead. Once their examinations were over, their motivation levels might have shifted again. However, this shift could have only been determined through longitudinal studies of their motivations. Children in Singapore spend six years in primary schools and sit for two examinations per year at each level. Their motivation levels are likely to shift as they progress through their primary years due to the pressure of examinations. Hence, this thesis explores the motivational profiles of students during this progression.

Studies of student motivation in both elementary and high schools have concentrated largely on students from Western countries. Most of the studies conducted in Western countries have reported a decline in students' motivation as they progress through their school years. It is unknown whether such a decline in motivation occurs among students in Asia. Lau (2009) sought to determine whether students at different grade levels differed in their reading motivation. Lau's (2009) use of the term 'motivation' included self-efficacy and intrinsic, extrinsic and social motivation.

Lau's (2009) study was based on 1,794 students from 11 primary schools, 12 junior secondary schools and 6 senior secondary schools in Hong Kong. The author posed five research questions, two of which related to the internal consistency and validity of the Chinese Reading Motivation Questionnaire. The other three questions asked about the levels of and relationships between various reading motivation constructs and grade levels and the

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interactions between gender and achievement and grade differences in students' reading motivation.

According to the results, the students at higher grade levels had poorer motivation than the students at lower grade levels. Furthermore, the students from schools with higher achievement levels had better motivation than the students from schools with lower achievement levels. In terms of gender differences, girls had better intrinsic and social motivation than boys (ibid, 2009).

Although consistent with previous studies of student motivation (Anderman and Maehler, 1994; Gottfried, 1990; Gottfried et al., 2001; Lepper et al., 1997, 2005), Lau's (2009) study was cross-sectional. It examined the motivation levels of three different groups of students before arriving at a conclusion. Given the variables the students might have encountered, such as the motivating styles of their parents and teachers, their motivational profiles might have shifted as they progressed through their school years. A longitudinal study could have determined the students' motivational profiles.

According to self-determination theory, a longitudinal study of shifts in students' motivation must explore their external, introjected, identified and integrated regulation. However, as Deci et al. (1991) stated, children and young teenagers may be too young to fully integrate their motivation. In such cases, intrinsic motivation must be measured in place of integrated regulation. As Deci and Ryan (2000) observed, integrated regulation is the type of regulation on the extrinsic motivation continuum that is closest in form to intrinsic motivation. However, it cannot replace intrinsic motivation, as it remains a highly self-determined form of extrinsic motivation. Such a highly self-determined form of extrinsic motivation will always remain extrinsic, as it is instrumental rather than what Csikszentmihalyi (1975; as cited in Deci and Ryan, 2000, p. 237) referred to as autotelic. Given the various types of variables children may face as they progress through their primary school years, such as the motivating styles of teachers and parents, examinations and peer pressure, their motivation levels may shift. Hence, this thesis measures the shifts in students' external, introjected and identified regulation and intrinsic motivation as they progress through their primary school years.

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In another study of learning and motivation conducted from a sociocultural perspective, Kim, Schallert and Kim (2010) examined the effect of parental motivational style and students' own goal orientations based on self-determination theory. The authors hypothesised that students' perceptions of their parents' goal orientations for their mathematics achievements and their perceptions of their parents' motivating styles predicted their own adoption of certain goal orientations in their mathematics classes, mediated by their self-regulated motivation for learning.

The authors also hypothesised that students' perceptions of their parents' performance goal orientation and/or motivating styles predicted their adoption of a performance-approach orientation, mediated by a more controlled regulation such as introjected regulation. They also predicted that Korean students' perceptions of their parents' controlling motivating styles was associated with both their autonomous regulation and mastery goal orientation. In addition, they hypothesised that the students' perceptions of the classroom goal structure of their mathematics classes predicted their adoption of their own goal orientation, mediated by their self-regulation motivation for learning.

The study was conducted based on 383 Korean students attending middle and high schools in Seoul. It found that students' personal mastery goal orientation was indirectly predicted by both their perceptions of their parents' mastery goals for them and their perceptions of their parents' autonomy supportive motivating style, mediated by their identified regulation. Next, although the students' perceptions of their parents' performance goal orientation was significant to their personal performance-approach goal orientation, the latter was mediated by their introjected regulation. Furthermore, although the students' external regulation did not predict their performance-avoidance goal orientation, their external regulation was predicted strongly by both their perceptions of their parents' performance goals for them and their perceptions of parental control.

The results implied that in Korea parental influence played a role in the goal orientations of students. However, such goal orientations were also mediated by the students' self-determined regulation. It is unknown whether the students' self-determined regulations would have changed as they progressed through their school years. This change in the self-determined regulations along with parental influence might have affected the students' goal

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orientations. In addition, the students' self-determined regulation during their primary school years is unknown. It could have shifted and, together with the influence of their parents, shaped the students' current goal orientations. Furthermore, the measurement of the students' self-determined regulation was based on a between-subjects measurement in which the subject of mathematics served as the target. It did not explore the students' within-subject self-determined regulation. This between-subjects self-determined regulation might have differed from that considered based on a within-subject measurement. Singaporean students may share similar motivational attributes with Korean students because both students attend schools in Southeast Asia. Therefore, this thesis measures shifts in the motivational profiles of students as they progress through their primary school years.

Aalsvoort, Lepola, Overtoom and Laitinen (2015) conducted a cultural study to determine the differences in motivational tendencies between four-, five- and six-year-old children from the Netherlands and Finland. The authors also investigated gender differences in the motivational factors between Dutch and Finnish children.

The study was conducted based on 266 Dutch and 139 Finnish children according to their teachers' ratings. The results revealed that task orientation was significantly lower among the four-year-olds than among the five- and six-year olds, and that task avoidance was significantly higher among the four-year-olds than among the five- and six-year-olds. They also showed no significant difference in task orientation and avoidance among children from either the Netherlands or Finland. In terms of gender differences, girls were more task-oriented, and boys were rated higher than girls on task avoidance in crafts and play-like tasks. Aalsvoort, Lepola, Overtoom and Laitinen (2015) concluded that children could be poorly motivated even at a young age. They stated that teacher colleges may need to inform future teachers about how child motivation develops over time, and identified a need to check on the motivation levels of children to develop successful classroom coping strategies.

Although Aalsvoort, Lepola, Overtoom and Laitinen (2015) provided good insight into the cross-cultural aspects of motivation in young children, it did not investigate whether the motivation levels of these children would change as they progressed through their school years. Knowledge of how these levels shift may enable educators to work on the motivation of children, and the results of longitudinal studies can have positive implications for teaching

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and learning (Schunk, 2000). Furthermore, by establishing theoretical knowledge, longitudinal studies can provide a platform for investigating the stability of a construct across age ranges. This is especially true in the case of young children. Indeed, as longitudinal studies can be conducted to investigate whether a construct changes or remains stable over time (Emde and Harmon, 1984; Lerner et al., 1996; Kagan, 1971; as cited in Gottfried, Fleming and Gottfried, 2001), it would be appropriate to conduct such a study to ascertain whether children's motivation levels change or remain stable over time.

This extensive literature review reveals that studies have not explored shifts in the motivation levels of children as they progress through their primary school years. Knowledge of these shifts may help to guide educators on improving their pedagogical skills and inform them of how the motivational needs of students can be catered to. Hence, the thesis seeks to answer the following research question: do students' motivation levels move from external regulation to integrated regulation as they progress from Primary 3 to Primary 5? It also focuses on the following sub-questions.

- (1) What is the motivation level of students at Primary 3 (Year 3)?
- (2) Do students' motivation levels shift at Primary 4 (Year 4)?
- (3) Do students' motivation levels shift at Primary 5 (Year 5)?

Based on the research question and sub-questions, this thesis advances the following hypothesis: students' motivation levels shift as they progress through their primary school years.

Studying the shifts in motivation levels of children as they progress through their primary school years is important in the field of education in Singapore. The emphasis of teaching in Singapore has moved towards an understanding of concepts rather than simply the ability to perform well on examinations. Students are expected to exhibit more intrinsic forms of extrinsic motivation as they progress through their primary school years. In this



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thesis, it is expected that, in general, the ratings for identified and integrated regulation increase and those for introjected and external regulation decrease over time.

The literature reviews that have been used for this study examined mainly into the motivation of children from Western countries. It is wondered if these literatures are of relevance to an Asian country like Singapore, a multicultural society. However, it must be noted that Singapore had been a British colony for nearly one hundred and fifty years since 1819 till her independence in 1965 (Turnbull, 1989). With the rich influence of British culture having permeated every aspects of life and governmental policies of Singapore, behaviour of Singaporean pupils from a psychosocial perspective is similar to that of pupils from Western cultures. As such, these literature reviews will definitely be of relevance to the study of the shift in the motivation of pupils of Singapore.

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## Chapter 4 Method

### 4.1 Introduction

An extensive review of the literatures which explored into the motivation of students was conducted in Chapter 3 of this thesis. In addition, the chapter also sought to formulate the research question asking if students' motivation shifts from external regulation to integrated regulation as they progress along their primary school years. Based on the research question, the thesis then proceeded to advance the hypothesis that students' motivation levels shift as they progress through their primary school years. With the hypothesis established, the thesis will then proceed onto Chapter 4, to discuss the method in which the study was carried out.

This chapter is divided into five sections; Methodology, Design, Participants, Ethical Considerations, Materials and Procedure. The Methodology section gives a brief outline of how the study was carried out. The type of research to be conducted and the variables of the study are outlined in the Design section. The Participants section includes a detailed explanation of how the participants in the research were recruited, their schools and their gender, age and race. Details of how the participants gave informed consent are given in the Ethical Considerations section, along with how the study adheres to the 2009 code of the Ethics Committee of the British Psychological Society. The Materials section provides a detailed explanation of the materials used in the research, including the questionnaire, the stationery used by the participants and the location where the questionnaires were given out. Finally, the Procedure section describes in detail the manner in which the instructions were given to the participants, and how they were instructed to complete the questionnaire. The chapter ends with a discussion of the timeframe in which the participants completed the questionnaire.

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## 4.2 Methodology

The data collection started in 2011 and ended in 2013, and six waves of data were collected in this within-participant longitudinal study. In 2011, the pupils were in Primary 3, and were required to complete the questionnaire twice in the year, first in March and then again in October. In March 2012, the same group of pupils was again required to answer the same questionnaire and again in October 2012. The data collection continued in March and October 2013 when the pupils had graduated to Primary 5. Of the six waves of data collected, only 3 waves (Time 1, Time 3 and Time 6) of data were used to measure the shifts in the motivation of the pupils. The reason for using only 3 waves of data was that it was felt that the motivation of the pupils will not change drastically in between the timeframes.

Each school year in Singapore starts from 2nd January and ends on 31st December. The 12 months are divided into 4 terms, each term consisting of 10 weeks. The 1st term starts from January and ends in late March. The end of the term is followed by a one week holiday, known as the March holidays. After the March holidays, the 2nd term will start and it ends 10 weeks later towards the end of May. The end of the 2nd term is followed by a 1 month holiday in June of which is also known as the June holidays. After the June holidays, the 3rd term will start in July and end 10 weeks later in September. This is followed by a 1 week holiday of which is also known as the September holidays. After the September holidays, the 4th term will start. It will end 10 weeks later in mid-November. This is then followed by end of the year school holidays from mid-November to 31st December where the next school year will start.

In a school year itself, there are a number of tests and examinations which pupils from Primary 2 to Primary 6 have to take. The first test which all pupils have to take is the 1st continual assessment test. This test is conducted in the second week of March, before the March holidays. The next assessment that the pupils have to take is an examination in mid-May. This examination is known as the 1st semester examination or the mid-year examination. After that, Primary 2 to Primary 5 pupils are required to take the 2nd continual assessment test held in early September while Primary 6 pupils take the prelim examination. This prelim examination is a preliminary examination to prepare the pupils for the Primary School Leaving Examination, to be taken at the last week of September. As for the rest of the

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pupils from Primary 2 to Primary 5, they will have to take a year end examination, known as the 2nd semester examination or the final year examination which is held in late October, continuing till first week of November. As for Primary 1 pupils, they are exempted from any examinations or tests.

The date for the collection of the data was solely stipulated by the principal of the school where the study was being carried out. The principal of the school felt that March and October were suitable timeframes for the study to be carried out however the principal did not elaborate further on why the dates were suitable. As such, data were collected from the pupils once in March and once in October.

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### 4.3 Design

This was a longitudinal study that sought to measure shifts in the motivation of pupils as they progress through their primary school years. A within-participant, repeated measure design was adopted to suit the nature of the study. The independent variable is time and the dependent variable is the shift in the external, introjected, identified and integrated regulation of the pupils as they progress through their primary school years. Data were collected in six waves.

The reason why a qualitative study was not conducted to capture the reasons for a shift in motivation of the pupils was due that the principal of the school, where the study was being conducted, did not approve of a qualitative study to be carried out. To conduct a qualitative study, parental consent would be needed. The school principal felt that to get parental consent was too much hassle for the school as parents may demand to know the results of the study. She felt that the results of the study concerned only the pedagogical practice of the teachers hence it was not necessary to have parental involvement in the study. In conducting this quantitative study, only children's consent were collected as the study did not contain sensitive questions that required parental consent for these questions to be answered. Furthermore, the school principal felt strongly that the results of the study concerns only teacher's pedagogical practices, the school was able to approve this quantitative study on behalf of the parents of these pupils.

The venue this study, a primary school in the western part of Singapore, was chosen because I have spent about eight years as a counselor and teacher in that school. I know the characteristics of the pupils and the pedagogical practices of the teachers well. I have witnessed, on many occasions, teachers complaining that the pupils seem less motivated towards their studies as they progress along their primary school years. I have also counselled a number of pupils (though not from the batch where the studies were carried out), who were referred for their lowered interests towards their studies, instead focusing more on non-curricular activities. I became interested in finding out if the motivation of the pupils towards their studies will change as they progress along their primary school years. After consulting my supervisors with regards to this study and with the agreement of the principal of the school where the study was to be carried out, I carried out the first study to measure the shift in the motivation of the pupils in March 2011.

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### 4.4 Participants

The aim of the research study was to measure shifts in the motivation of pupils toward their study as they progress through their primary school years. The decision was taken to measure motivation twice a year for a period of three years, once in the early part and once toward the end of the school year. The twice-yearly measurements ensured that any large shifts in the motivation of the pupils, either early or late in the school year, would be captured. It was initially planned that motivation would be measured after the pupils moved to Primary 2, as in Primary 1 they are still settling in and getting used to the academic rigours of primary school. However, after a thorough examination of the questionnaire, it was decided that pupils in Primary 2 might not have the language ability to understand it, or the maturity to adequately answer the questions. The research study was then altered to survey pupils in Primary 3 and continuing until their graduation in Primary 6. However, after consultation, the school principal advised that the pupils should not be burdened with the survey in Primary 6, as they needed to prepare for the primary school leaving examination (PSLE). It was therefore decided that the pupils' motivation should first be measured in Primary 3, and data collection would stop when they were in Primary 5.

The participants recruited were pupils studying in a primary school in the western part of Singapore, which is a neighbourhood school. As in all Singapore primary schools, the participants go through six years of education, from Primary 1 to 6. They then take the Primary School Leaving Examination (PSLE), which is a national examination determining the type of secondary school in which they will continue their education. The examination also determines the secondary education stream they enter. Pupils with good PSLE results will go to elite secondary schools, and the rest to neighbourhood secondary schools. Those with good PSLE results enter the express stream and complete four years of secondary school, while pupils who did not score well either enter a five-year normal academic stream or a five-year normal technical stream.

A total of 179 pupils ( $N = 179$ ) took part in this three-year longitudinal study, carried out when they were in Primary 3 in 2011. These were the cohort of Primary 3 pupils in that school for that year. The study started in 2011 and data collection ended in 2013, when the pupils were in Primary 5. They came from five different Primary 3 classes of similar

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academic abilities. The first three classes each contained 33 pupils and the last two had 40 pupils each. Of the 179 pupils, 93 were girls ( $N = 93$ ) and 86 boys ( $N = 86$ ). The racial composition of the pupils taking part in the study was Chinese ( $N = 83$ ), Malay ( $N = 68$ ), Indian ( $N = 15$ ) and Others ( $N = 13$ ), which included pupils of different nationalities (Burmese, Indian nationals and those from China). There were five Burmese, three Indian nationals and five pupils from China in the 'Other' racial group. No pupils opted out of the study over its duration from 2011 to 2013.

One issue in any longitudinal study is the attrition rate. This study had a within participant six-wave repeated-measures design, so attrition was a considerable risk. However, the Compulsory Education Act, implemented in Singapore in 2003, states that:

'A child of compulsory school age born after 1st January 1996, and who is a citizen of Singapore residing in Singapore, has to attend a national primary school as a pupil regularly, unless he/she has been exempted from compulsory education, e.g. a child with special needs, a child attending a designated school, a child receiving home-schooling.' (Attorney General's Chambers, 2003)

It was therefore unlikely that any (or very many) pupils would withdraw from school and hence be withdrawn from the study. A change of school is only possible when the family moves to another state, and even if this is the case, the availability of space in a school in the particular neighbourhood will determine whether the child can transfer from one school to another. The likelihood of a child withdrawing from the study due to a transfer of school was therefore very low.

This supposition regarding attrition rate was confirmed, as no pupils dropped out of the study, and none were transferred out of the school between 2011 and 2013. Primary 3, the level at which the study was carried out, was running at full capacity – there were no vacancies available for any parents wishing to transfer their children to the school at that level. The situation was the same in 2012, when the pupils progressed to Primary 4, with no vacancy available to pupils from Singapore or overseas, and 2013 also saw no vacancies. As a result, there was no movement of pupils in or out of the school over the three-year period. All pupils progressed from Primary 3 to Primary 5 successfully, and none were retained as a result of poor academic performance.

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### 4.5 Ethical Considerations

The instructions and strategies provided by the Ministry of Education are not overly prescriptive, and the implementation of the policy Think School Learning Nation requires school leaders to creatively and comprehensively engage teachers, students and various stakeholders of the school to form a productive partnership (Lana, 2008, as cited in Tan & Tee, 2008). School principals are required to take on the role of school CEOs, and are the decision-makers on most matters. With this in mind, the school principal was approached by the researcher to conduct the study. The Ministry of Education (Singapore) was not approached with regards to the study.

The Code of Ethics and Conduct, published by the Ethics Committee of the British Psychological Society (2009), states in 1.3, the Standard of Informed Consent, that;

‘Psychologists should remain alert to the possibility that those people for whom professional services or research participation are contemplated may lack legal capacity for informed consent.’ (p. 12)

The pupils who took part in the study were nine years old, therefore the standard of informed consent applied to them. It was initially planned that the parents of the children participating would give their informed consent, but as the principal of the school approved, the children were able to take part in the survey without parental consent. The school principal vetted the questionnaire and concluded that none of the questions required sensitive information from the children or their parents, and decided that the results of the survey would help inform the efficacy of the pedagogical aspects of the school, rather than the individual children involved in the study. Therefore, parental consent was not required. The school was then the authorised representative consenting the children's participation in the survey. A copy of the research ethics and data protection monitoring form was completed and submitted to the university's ethical committee for the approval of the study, and once this was received, the study was able to commence.

In compliance with the Code of Ethics and Conduct (British Psychological Society, 2009), informed consent was given before the children could take part in the study, and they were also given the right to withdraw at any time. All collected data were kept confidential and after the data was keyed in, the questionnaires were shredded and sent to the national



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incinerator to be destroyed completely. All personal records were also destroyed. These processes were all carried out in person by the researcher.

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### 4.6 Materials

A questionnaire designed to measure the shift in motivation was given to all pupils. This is known as the 'Academic Self-Regulation Questionnaire' and is entitled 'Why I Do Things' (Ryan and Cornell, 1989). It seeks to elicit information from pupils about their motivation toward the work given to them by their teachers.

The questionnaire consists of four questions, each of which is followed by several responses that represent the four regulatory styles. These styles represent the constructs to be measured in this study. The constructs are external regulation, introjected regulation, identified regulation and intrinsic motivation. External regulation and introjected regulation consist of nine responses each, while identified regulation and intrinsic motivation each consist of seven questions. An example of a question is; 'Why do I do my homework?' An example of a response to measure external regulation is; 'Because I'll get in trouble if I don't'. One response to measure introjected regulation is; 'Because I want the teacher to think I'm a good student', and a response to the measure of identified regulation is; 'Because I want to understand the subject'. Finally, an example of a response to measure intrinsic motivation is; 'Because it's fun'.

The pupils first read the question and a response, and then circle an item on a scale that best describes their characteristics corresponding to that particular response. The scale items are; Very True, Sort of True, Not Very True and Not At All True. For example; Question A; 'Why I do my homework'? Response 1; 'Because I want the teacher to think I'm a good student'. If a pupil feels that this response truly represents the reason why he or she does his or her homework, then the pupil circles 'Very True'.

The pupils must complete all the questions and responses in the questionnaire within 30 minutes. They use their own pencils or pens to circle the responses and the survey is conducted in the pupils' own classrooms.

The Academic Self-Regulation Questionnaire entitled 'Why I do Things' was chosen to be the questionnaire for the measurement of shift in the motivation of the pupils due to its ease of language used. The language, English, which was used for the questionnaire, was simple to read and understand. It is suitable for primary school children especially lower primary school children. As the questionnaire was given to pupils at Primary 3, the language for the questionnaire to measure their motivation must not be too difficult to

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read and understand. This is to ensure that the children do not just place an answer to the options of the questionnaire without a good understanding of the questions. Otherwise it will render the study unreliable and invalid. The language ability of the pupils of the school in which the study was to be carried out was deemed to be of a level which can easily understand the questions in the questionnaire. With the language ability of the pupils taken into consideration, the Academic Self-Regulation Questionnaire was used to measure the shift in the motivation of the pupils as they progress along their primary school years.

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#### 4.7 Procedure

The data collection started in 2011 and ended in 2013, and six waves of data were collected in this within-participant longitudinal study. In 2011, the pupils were in Primary 3, and were required to complete the questionnaire twice in the year, first in March and then again in October. In March 2012, the same group of pupils was again required to answer the same questionnaire and again in October 2012. The data collection continued in March and October 2013 when the pupils had graduated to Primary 5.

The questionnaires were given to the pupils in their classrooms by the researcher. One class was surveyed each day, so for five classes the study took five days to complete. Each class was given around 40 minutes to complete the survey. This included the time it took the researcher to read aloud the instructions. In each class, the pupils were read the questionnaire instructions, which are as follows.

‘This survey is to find out why you do your work in class. Answer the questions to your best ability and do not copy your friend’s answers. Read the questions carefully and circle the option that best tells me about you. For example Question A: Why I do my homework? Response 1 is; Because I want the teacher to think I’m a good student. If you feel that this response truly describes why you do your homework, then circle the term ‘Very True’. If you feel that this statement is true but at the same time you also want to do your homework, then circle ‘Sort of True’. If you feel that the statement is not very true because you really want to do your homework and having the teacher to think that you are a good student is not really important, then circle ‘Not Very True’. However if this statement is not true at all of you as you really want to do your homework and it is not important for the teacher to think that you are a good student, then circle ‘Not True at All’. Once you have finished circling the first response, go on to the next response. Do not stop until you have completed all the responses. However if you decide that you do not want to do or complete the survey, you may, at any time when answering the questions choose to stop and leave the room. Your responses to this survey will be kept strictly with me and will not be shown to anyone.

Do not think too long about the questions and responses. Circle the term that describes you best immediately. If you have any questions please do raise your hand and ask me. Once you

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have understood my instructions, put a tick in the box by the cover page to acknowledge that you have understood the instructions.’

Once the pupils confirmed they understood the instructions, they ticked the box on the cover page and signed their names in the space provided. They could use either a pen or pencil of their own to complete the questionnaire. The researcher, along with the teacher, remained in the class while the pupils worked on the questionnaire, in case there were any queries.

Once the pupils completed the questionnaires, the researcher collected the papers. The pupils were then thanked for completing the survey and were debriefed. It was again explained to them that the survey was a study to understand why they do their homework. They were also told that the researcher would not show their responses to anyone else.

The same procedure was repeated in October 2011 and in March 2012, when the pupils were then in Primary 4. The procedure and instructions were again given to the pupils in October 2012 and March 2013, when the cohort of pupils was in Primary 5. The questionnaire was given out for the last time in October 2013.

After the survey was completed, the results were collected and computed. The data were then statistically analysed using SPSS software. It was decided that the data for Time 1, Time 3 and Time 6 were to be used for the statistical analysis because Time 1 represented the starting point, Time 3 represented the midpoint and Time 6, the end of the research. Pupil motivation was not expected to shift much in between these timeframes; that is Time 2, Time 4 and Time 5. Computation and analysis of the results will be discussed in detail in the ‘Results Section’. A copy of the questionnaire is attached in Appendix A.

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## Chapter 5 Results

### 5.1 INTRODUCTION

The method on how the data was collected was discussed in Chapter 4. With that, the data is then analyzed in detail in Chapter 5. The results of the study are reported in two sections. The first section reports the reliability analysis results for the test items. The second section reports the analysis of variance (ANOVA) results for external, introjected, identified, and integrated regulation.

The study instrument consisted of four constructs. One construct comprising nine items was used to measure the external regulation of the pupils. One construct comprising nine items was used to measure the introjected regulation of the pupils. One construct comprising seven items was used to measure the identified regulation of the pupils. Finally, one construct comprising seven items was used to measure the integrated regulation of the pupils.

Of the six timeframes of data collected to measure the shift in pupil motivation, three were used to analyse this shift: Times 1, 3, and 6. The data for Time 1 were collected at the start of the year when the pupils were in Primary 3. The data for Time 3 were collected at the start of the year when the pupils were in Primary 4. The data for Time 6 were collected at the end of the year when the pupils were in Primary 5. These three timeframes were used for analysis because Time 1 represented the starting point, Time 3 the midpoint and Time 6 the end of the research. Pupil motivation was not expected to shift much in between these timeframes.

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## 5.2 Internal Reliability of the Instrument

Before the results were analysed, item reliability tests for the various constructs were conducted using Cronbach's alpha. Table 1 displays the validation results for external, introjected, identified, and integrated regulation in the three timeframes.

Table 5.1

*Reliability Analysis of the Items Used to Measure External, Introjected, Identified, and Integrated Regulation*

Construct	Alpha	Number of items	N
External Regulation Time 1	.74	9	179
External Regulation Time 3	.76	9	179
External Regulation Time 6	.72	9	179
Introjected Regulation Time 1	.79	9	179
Introjected Regulation Time 3	.78	9	179
Introjected Regulation Time 6	.80	9	179
Identified Regulation Time 1	.70	7	179
Identified Regulation Time 3	.76	7	179
Identified Regulation Time 6	.84	7	179
Integrated Regulation Time 1	.78	7	179

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Integrated Regulation Time 3	.77	7	179
Integrated Regulation Time 6	.89	7	179

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The reliability scales of the items measuring external regulation at Times 1, 3, and 6 were .74, .76, and .72, respectively. For introjected regulation, the reliability scales at Times 1, 3, and 6 were .79, .78, and .80, respectively. For identified regulation, the reliability scales at Times 1, 3, and 6 were .70, .76, and .84, respectively. For integrated regulation, the reliability scales at Times 1, 3, and 6 were .78, .77, and .89. A value greater than .7 denoted an acceptable standard of reliability (Kline, 2000). Hence, the items used to measure the four constructs were reliable.



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### 5.3 Analysis of Results

This section reports the statistical analysis results for external, introjected, identified, and integrated regulation collected over the three timeframes.

#### 5.3.1 External regulation.

The mean scores of the nine-item construct for each timeframe measuring the external regulation of each pupil were added together to yield a single score. This score was then measured via 2 Gender (Boys, Girls) x 3 (Time 1 vs. Time 3 vs. Time 6) factorial ANOVA. A main effect for time was expected, whereby external regulation was hypothesised to decrease over time. No main effects were expected for gender. The teaching styles were expected to affect the boys and girls equally. No interaction effects were hypothesised.

Factorial ANOVA was conducted to compare the main effects of time and the interaction effect between Gender (Boys, Girls) on the shift in external regulation. There was a significant shift in External Regulation,  $F(2, 66) = 3.97$ ,  $p < .05$  with an effect size  $\eta^2 = .022$ . This effect reveals that if we ignore whether the shift in External Regulation came from the boys or girls, then the shift in External Regulation over the three timeframes was significant. Bonferroni corrected post hoc tests showed that the shift in External Regulation from Time 1 ( $M = 3.25$ ,  $SD = .55$ ) to Time 6 ( $M = 3.13$ ,  $SD = .50$ ) was significant ( $p = .03$ ) but the shift from Time 3 ( $M = 3.21$ ,  $SD = .56$ ) to Time 6 ( $M = 3.13$ ,  $SD = .50$ ) was not significant ( $p = .13$ ). The shift in External Regulation from Time 1 ( $M = 3.25$ ,  $SD = .55$ ) to Time 3 ( $M = 3.21$ ,  $SD = .56$ ) was not significant ( $p = 1$ ). As shown in Table 5.2, the means for external regulation decreased from 3.25 at Time 1 to 3.21 at Time 3 and further to 3.13 at Time 6. Figure 5.1 plots this effect. The effect size of the shift in External Regulation over the three timeframes was small. According to Cohen (1992) an effect size of .10 and smaller is considered small. This means that though the shift in External Regulation from Time 1 to Time 3 and the shift in External Regulation from Time 3 to Time 6 was not significant, there was a real effect in the shift in External Regulation from Time 1 to Time 3 and from Time 3 to Time 6. This will be investigated in detail in the discussion section.

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There was a non-significant main effect for Gender,  $F(1,177) = .173, p = .68$ . This effect reveals that if we ignore the shift in External Regulation over the three timeframes, then both the boys and girls reported similar shifts in their external regulation. As shown in Table 5.3, the means for the external regulation for the boys decreased from 3.28 at Time 1 to 3.21 at Time 3 and further to 3.14 at Time 6. The means for external regulation for the girls decreased from 3.23 at Time 1 to 3.21 at Time 3 and further to 3.11 at Time 6. There was also no significant External Regulation x Gender interaction,  $F(2, 66.706) = .03, p = .79$  with an effect size  $\eta^2 = .001$ . This effect reveals that the shift in External Regulation over the three timeframes did not differ significantly between the boys and girls. Figure 5.2 plots this effect.

Table 5.2

*Mean External Regulation at Times 1, 3, and 6*

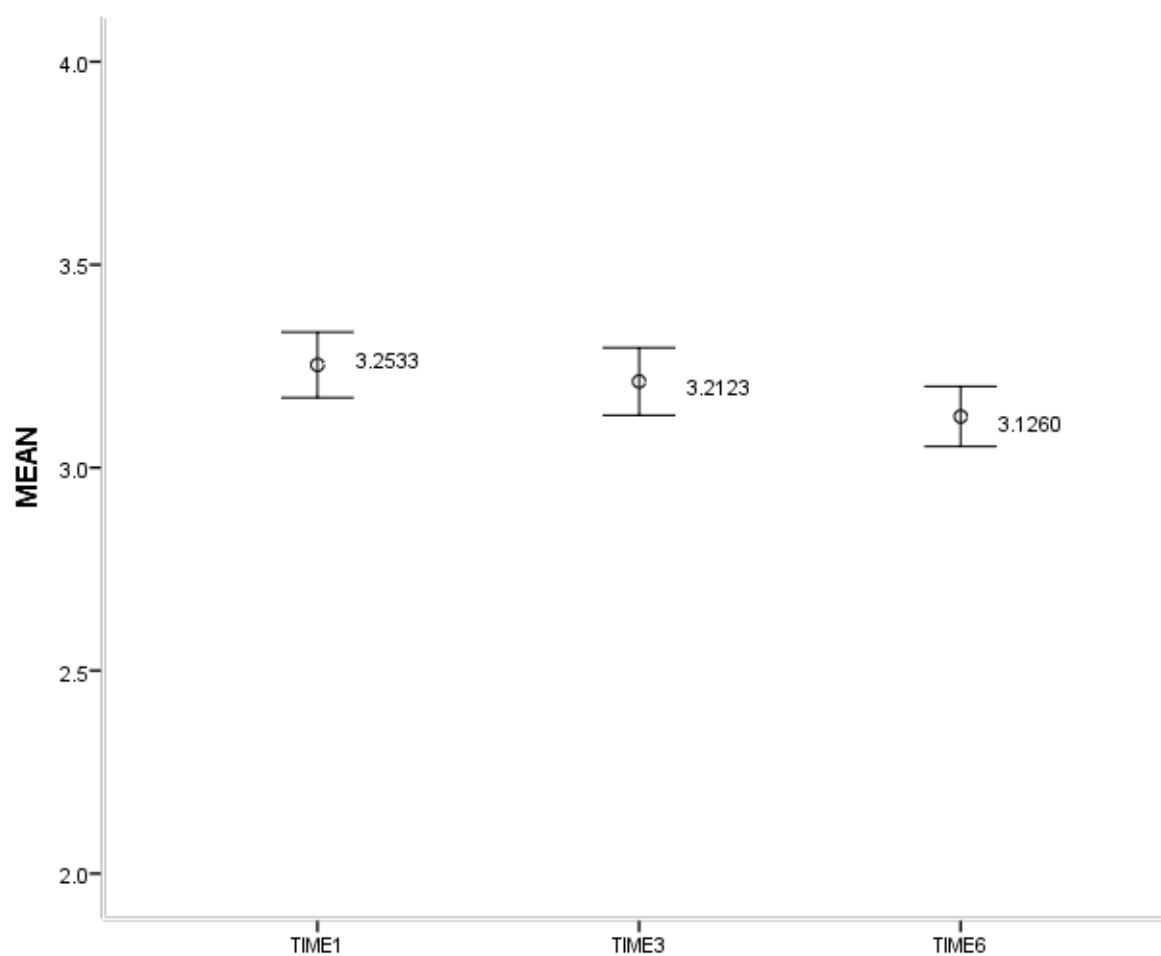
Motive	Time 1	Time 3	Time 6	Effect Size
External Regulation	3.25	3.21	3.13	.022

Table 5.3

*Mean External Regulation for the Boys and Girls at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6
External Regulation (Boys)	3.28	3.21	3.14
External Regulation (Girls)	3.23	3.21	3.11

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*Figure 5.1.* Mean External Regulation from Times 1 to 3 to 6.

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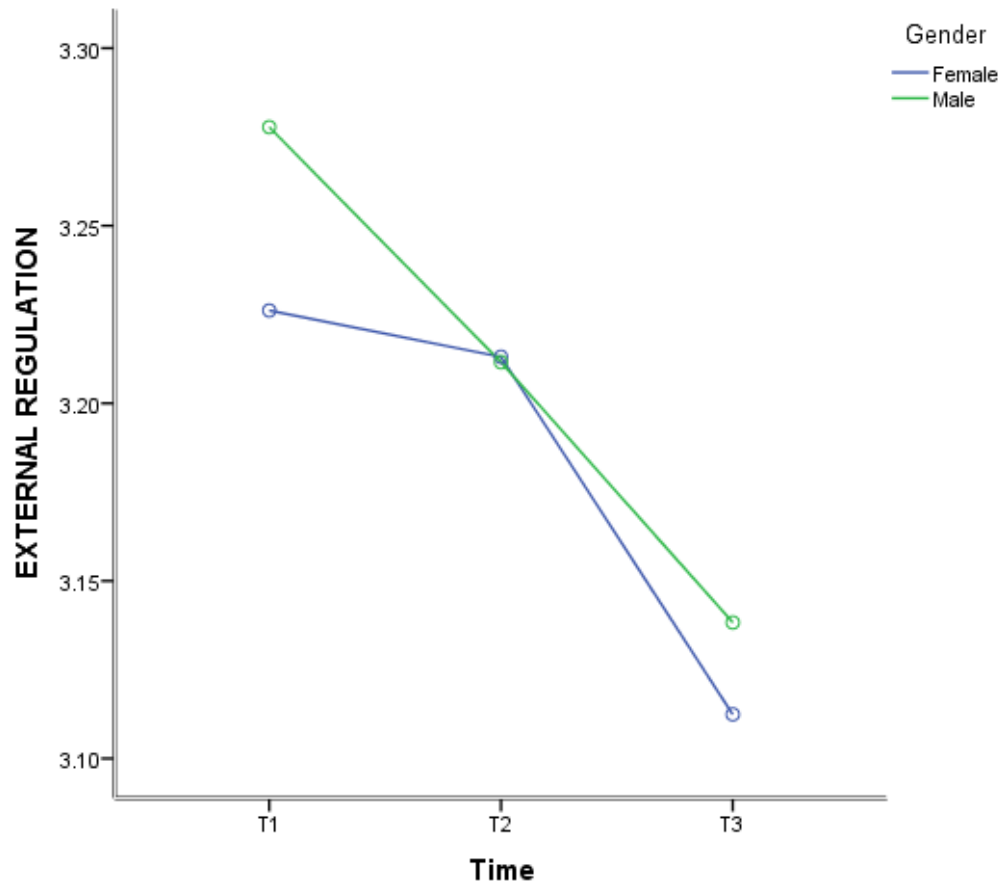


Figure 5.2. Mean External Regulation for boys and girls from Times 1 to 3 to 6.

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### 5.3.2 Introjected regulation.

The mean scores of the nine-item construct for each timeframe measuring the introjected regulation of each pupil were added together to yield a single score. This score was then measured via 2 Gender (Boys, Girls) x 3 (Time 1 vs. Time 3 vs. Time 6) factorial ANOVA. A main effect for time was expected, whereby introjected regulation was hypothesised to decrease over time. No main effects were expected for gender. The teaching styles were expected to affect the boys and girls equally. No interaction effects were hypothesised.

Factorial ANOVA was conducted to compare the main effects of time and the interaction effect between Gender (Boys, Girls) on the shift in Introjected Regulation. There was a significant shift in Introjected Regulation,  $F(2, 88.6) = 13.18, p < .05$  with an effect size  $\eta^2 = .069$ . This effect reveals that if we ignore whether the shift in Introjected Regulation came from the boys or girls, then there was a significant shift in Introjected Regulation over the three timeframes. Bonferroni corrected post hoc tests showed that there was a significant shift ( $p < .05$ ) in Introjected Regulation from Time 1 ( $M = 3.08, SD = .64$ ) to Time 6 ( $M = 2.83, SD = .59$ ). The shift from Time 3 ( $M = 3.03, SD = .63$ ) to Time 6 ( $M = 2.83, SD = .59$ ) was significant ( $p < .05$ ). However, the shift in Introjected Regulation from Time 1 ( $M = 3.08, SD = .64$ ) to Time 3 ( $M = 3.03, SD = .63$ ) was not significant ( $p = 1$ ). As shown in Table 5.4, the means for Introjected Regulation decreased from 3.08 at Time 1 to 3.03 at Time 3 and further to 2.83 at Time 6. Figure 5.3 plots this effect. The effect size of the shift in Introjected Regulation over the three timeframes was small. According to Cohen (1992) an effect size of .10 and smaller is considered small. This means that though the shift in Introjected Regulation from Time 1 to Time 3 was not significant, there was a real effect in the shift in Introjected Regulation from Time 1 to Time 3. This will be investigated in detail in the discussion section.

There was a non-significant main effect for Gender,  $F(1, 177) = .75, p = .39$ . This effect reveals that if we ignore the shift in Introjected Regulation over the three timeframes, then both the boys and girls reported similar shifts in their introjected regulation. As shown in Table 5.5, the means of Introjected Regulation for the boys decreased from 3.14 at Time 1 to 3.02 at Time 3 and further to 2.87 at Time 6. The means of Introjected Regulation for girls

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decreased from 3.01 at Time 1 to 3.05 at Time 3 and further to 2.78 at Time 6. There was also no significant Introjected Regulation x Gender interaction,  $F(2, 88.62) = 1.219$ ,  $p = .297$  with an effect size  $\eta^2 = .007$ . This effect reveals that the shift in Introjected Regulation over the three timeframes did not differ significantly between the boys and girls. Figure 5.4 plots this effect.

Table 5.4

*Mean Introjected Regulation at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6	Effect Size
Introjected Regulation	3.08	3.03	2.83	.069

Table 5.5

*Mean Introjected Regulation for Boys and Girls at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6
Introjected Regulation (Boys)	3.14	3.02	2.87
Introjected Regulation (Girls)	3.01	3.05	2.78

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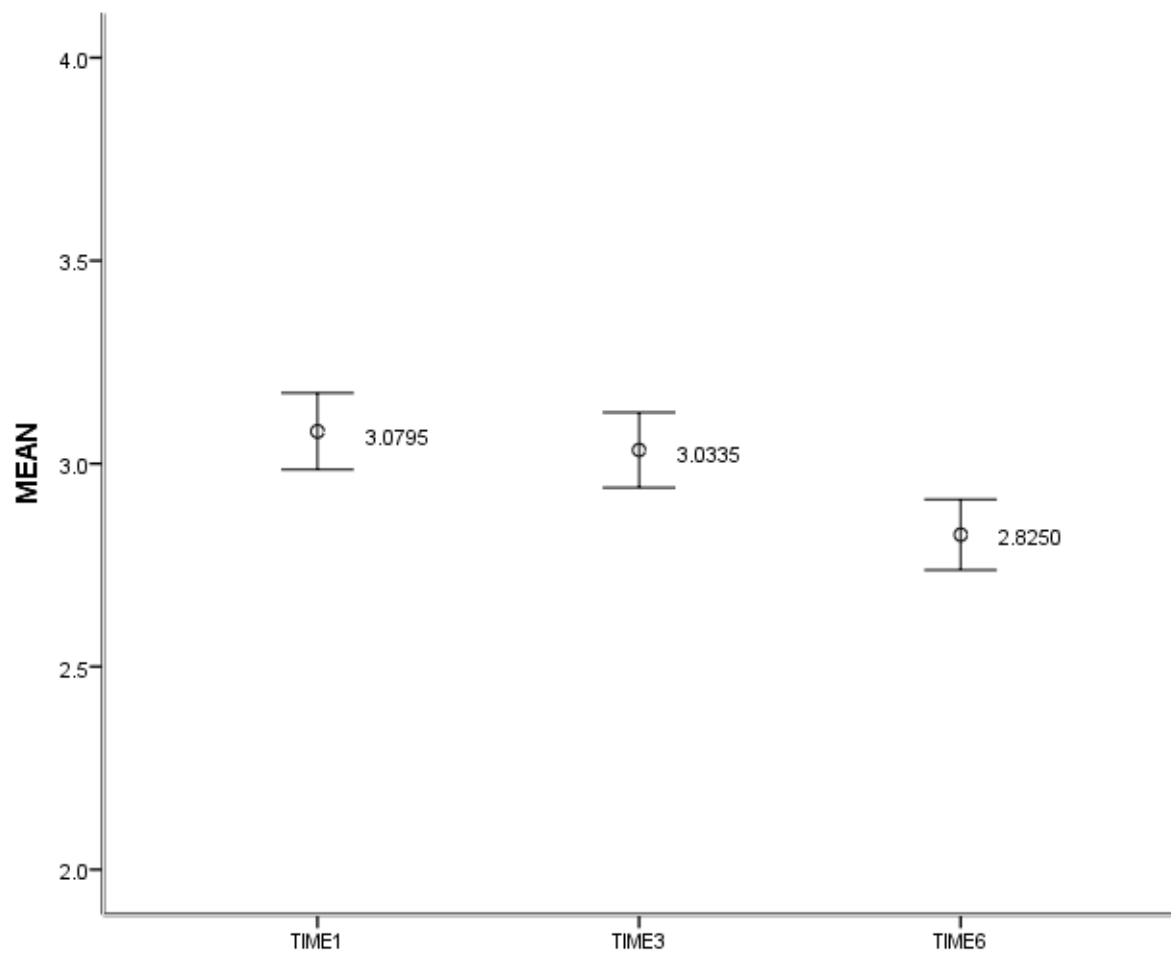


Figure 5.3. Mean Introjected Regulation from Times 1 to 3 to 6.

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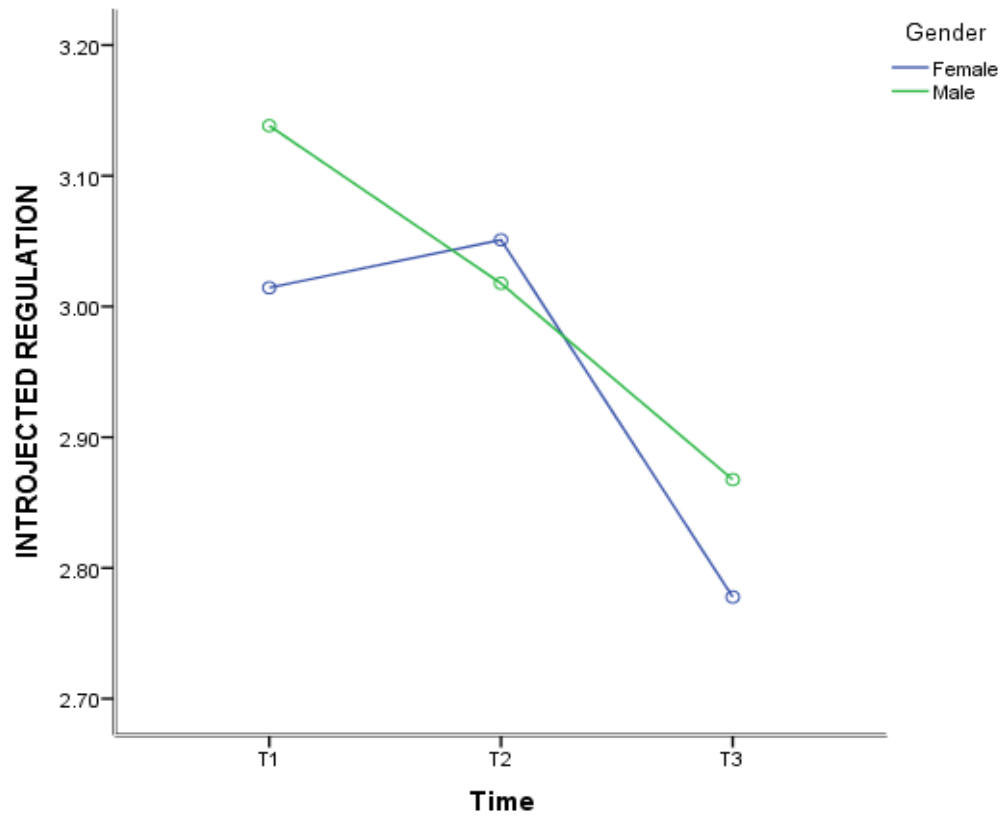


Figure 5.4. Mean Introjected Regulation for boys and girls from Times 1 to 3 to 6.



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### 5.3.3 Identified regulation.

The mean scores of the seven-item construct for each timeframe measuring the identified regulation of each pupil were added together to yield a single score. This score was then measured via 2 Gender (Boys, Girls) x 3 (Time 1 vs. Time 3 vs. Time 6) factorial ANOVA. A main effect for time was expected, whereby identified regulation was hypothesised to decrease over time. No main effects were expected for gender. The teaching styles were expected to affect the boys and girls equally. No interaction effects were hypothesised.

Factorial ANOVA was conducted to compare the main effects of time and the interaction effect between Gender (Boys, Girls) on the shift in Identified Regulation. There was no significant main effect in the shift in Identified Regulation,  $F(2, 70.6) = 1.75, p = .18$  with an effect size  $\eta^2 = .01$ . This effect reveals that if we ignore whether the shift in Identified Regulation came from the boys or the girls, then the shift in Identified Regulation over the three timeframes was not significant. Bonferroni corrected post hoc tests showed that the shift in Identified Regulation from Time 1 ( $M = 3.56, SD = .44$ ) to Time 3 ( $M = 3.48, SD = .5$ ) was not significant ( $p = .24$ ). The shift from Time 3 ( $M = 3.48, SD = .5$ ) to Time 6 ( $M = 3.48, SD = .52$ ) was not significant ( $p = 1$ ). The shift in identified regulation from Time 1 ( $M = 3.56, SD = .44$ ) to Time 6 ( $M = 3.48, SD = .52$ ) was also not significant ( $p = .4$ ). As shown in Table 5.6, the means for Identified Regulation decreased from 3.56 at Time 1 to 3.48 at Time 3 but increased slightly to 3.482 at Time 6. Figure 5.5 plots this effect. The effect size of the shift in Identified Regulation over the three timeframes was small. According to Cohen (1992) an effect size of .10 and smaller is considered small. This means that though the shift in Identified Regulation from Time 1 to Time 3 and the shift in Identified Regulation from Time 3 to Time 6 was not significant, there was a real effect in the shift in Identified Regulation from Time 1 to Time 3 and from Time 3 to Time 6. This will be investigated in detail in the discussion section.

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There was a non-significant main effect for Gender,  $F(1,177) = 3.52, p = .06$ . This effect reveals that if we ignore the shift in Identified Regulation over the three timeframes, then both the boys and girls reported similar shifts in their identified regulation. As shown in Table 5.7, the means of Identified Regulation for the boys decreased from 3.46 at Time 1 to 3.45 at Time 3 but increased to 3.48 at Time 6. The means of Identified Regulation for the girls decreased from 3.66 at Time 1 to 3.51 at Time 3 and further to 3.49 at Time 6. There was also no significant Identified Regulation  $\times$  Gender interaction,  $F(2, 70.6) = 1.92, p = .15$  with an effect size  $\eta^2 = .011$ . This effect reveals that the shift in Identified Regulation over the three timeframes did not differ significantly between the boys and girls. Figure 5.6 plots this effect.

Table 5.6

*Mean Identified Regulation at Times 1, 3, and 6*

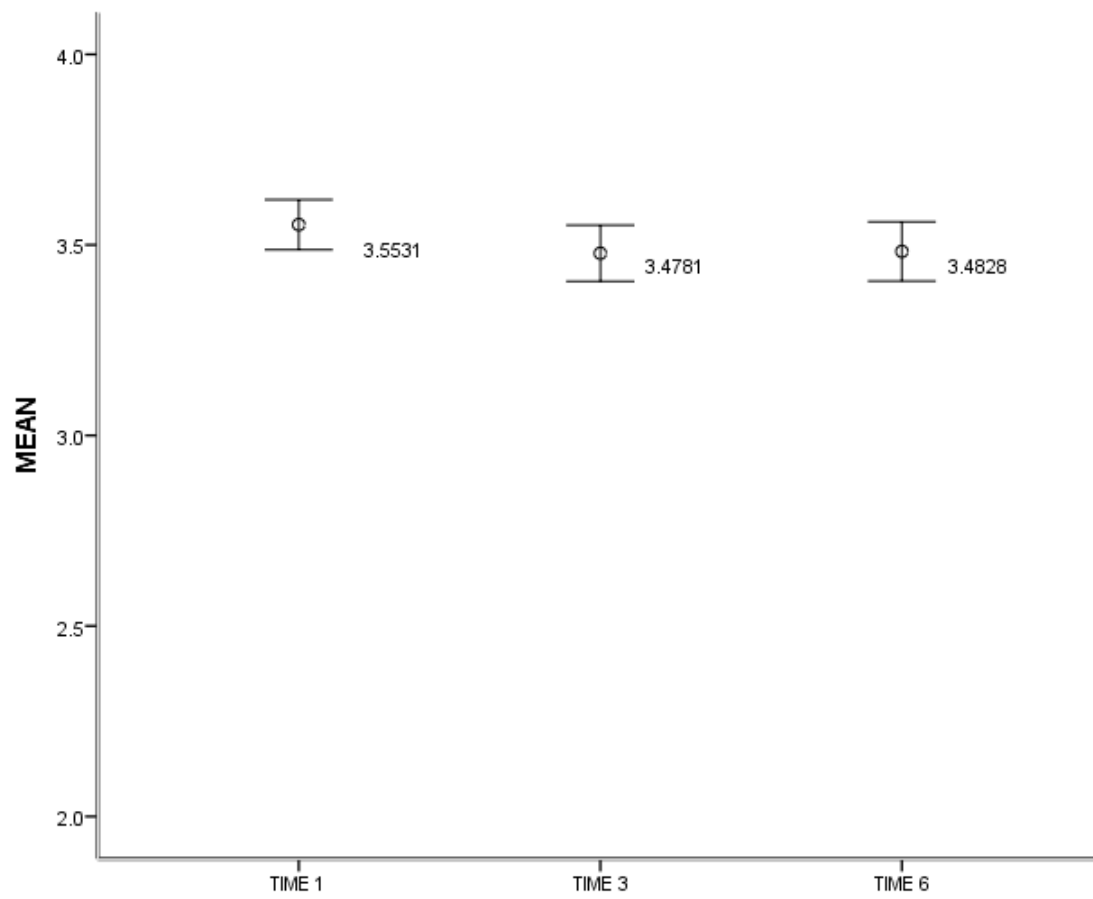
Motive	Time 1	Time 3	Time 6	Effect Size
Identified Regulation	3.55	3.48	3.48	.01

Table 5.7

*Mean Identified Regulation for the Boys and Girls at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6
Identified Regulation (Boys)	3.46	3.45	3.48
Identified Regulation (Girls)	3.66	3.51	3.49

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*Figure 5.5* Mean Identified Regulation from Times 1 to 3 to 6.

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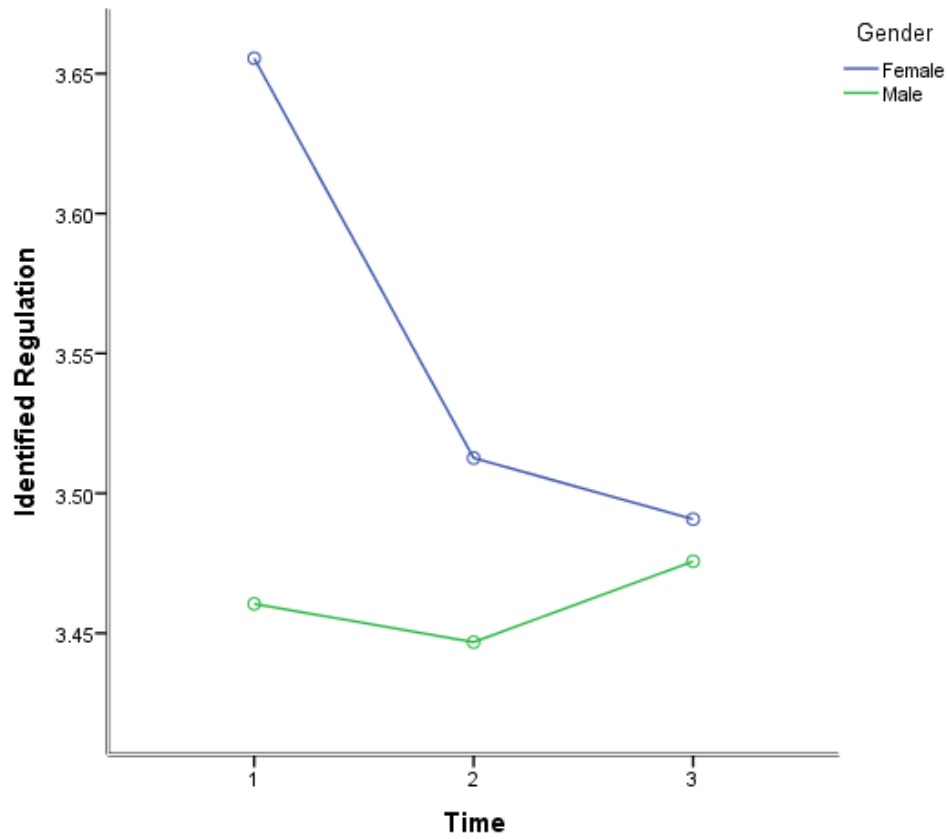


Figure 5.6. Mean Identified Regulation of the boys and girls from Times 1 to 3 to 6.

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5.3.4 Integrated regulation.

The mean scores of the seven-item construct for each timeframe measuring the integrated regulation of each pupil were added together to yield a single score. This score was then measured via 2 Gender (Boys, Girls) x 3 (Time 1 vs. Time 3 vs. Time 6) factorial ANOVA. A main effect for time was expected, whereby integrated regulation was hypothesised to decrease over time. No main effects were expected for gender. The teaching styles were expected to affect the boys and girls equally. No interaction effects were hypothesised.

Factorial ANOVA was conducted to compare the main effects of time and the interaction effect between Gender (Boys, Girls) on the shift in Integrated Regulation. There was a significant main effect in the shift in Integrated Regulation,  $F(2, 114.29) = 6.31$ ,  $p < .05$  with an effect size  $\eta^2 = .034$ . This effect reveals that if we ignore whether the shift in Integrated Regulation came from the boys or girls, then the shift in Integrated Regulation over the three timeframes was significant. Bonferroni corrected post hoc tests showed that the shift in Integrated Regulation from Time 1 ( $M = 3.08$ ,  $SD = .65$ ) to Time 3 ( $M = 2.89$ ,  $SD = .66$ ) was significant ( $p = .002$ ). The shift from Time 3 ( $M = 2.89$ ,  $SD = .66$ ) to Time 6 ( $M = 2.92$ ,  $SD = .75$ ) was not significant ( $p = 1$ ). However, the shift in Integrated Regulation from Time 1 ( $M = 3.08$ ,  $SD = .65$ ) to Time 6 ( $M = 2.92$ ,  $SD = .75$ ) was significant ( $p = .04$ ). As shown in Table 5.8, the means of Integrated Regulation decreased from 3.08 at Time 1 to 2.89 at Time 3 but increased slightly to 2.92 at Time 6. Figure 5.7 plots this effect. The effect size of the shift in Integrated Regulation over the three timeframes was small. According to Cohen (1992) an effect size of .10 and smaller is considered small. This means that though the shift in Integrated Regulation from Time 1 to Time 3 and the shift in Integrated Regulation from Time 3 to Time 6 was significant, there was a real effect in the shift in Integrated Regulation from Time 1 to Time 3 and from Time 3 to Time 6. This will be investigated in detail in the discussion section.

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There was a non-significant main effect for Gender,  $F(1,177) = .76, p = .38$ . This effect reveals that if we ignore the shift in Integrated Regulation over the three timeframes, then both the boys and girls reported similar shifts in their integrated regulation. As shown in Table 5.9, the means of Integrated Regulation for the boys decreased from 3.03 at Time 1 to 2.87 at Time 3 but increased to 2.89 at Time 6. The means of Integrated Regulation for the girls decreased from 3.14 at Time 1 to 2.90 at Time 3 but increased to 2.92 at Time 6. There was also no significant Integrated Regulation  $\times$  Gender interaction,  $F(2, 114.29) = .215, p = .81$  with an effect size  $\eta^2 = .001$ . This effect reveals that the shift in Integrated Regulation over the three timeframes did not differ significantly between the boys and girls. Figure 5.8 plots this effect.

Table 5.8

*Mean Integrated Regulation at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6	Effect Size
Integrated Regulation	3.08	2.89	2.91	.034

Table 5.9

*Mean Integrated Regulation for the Boys and Girls at Times 1, 3, and 6*

Motive	Time 1	Time 3	Time 6
Integrated Regulation (Boys)	3.03	2.87	2.89
Integrated Regulation (Girls)	3.14	2.90	2.95

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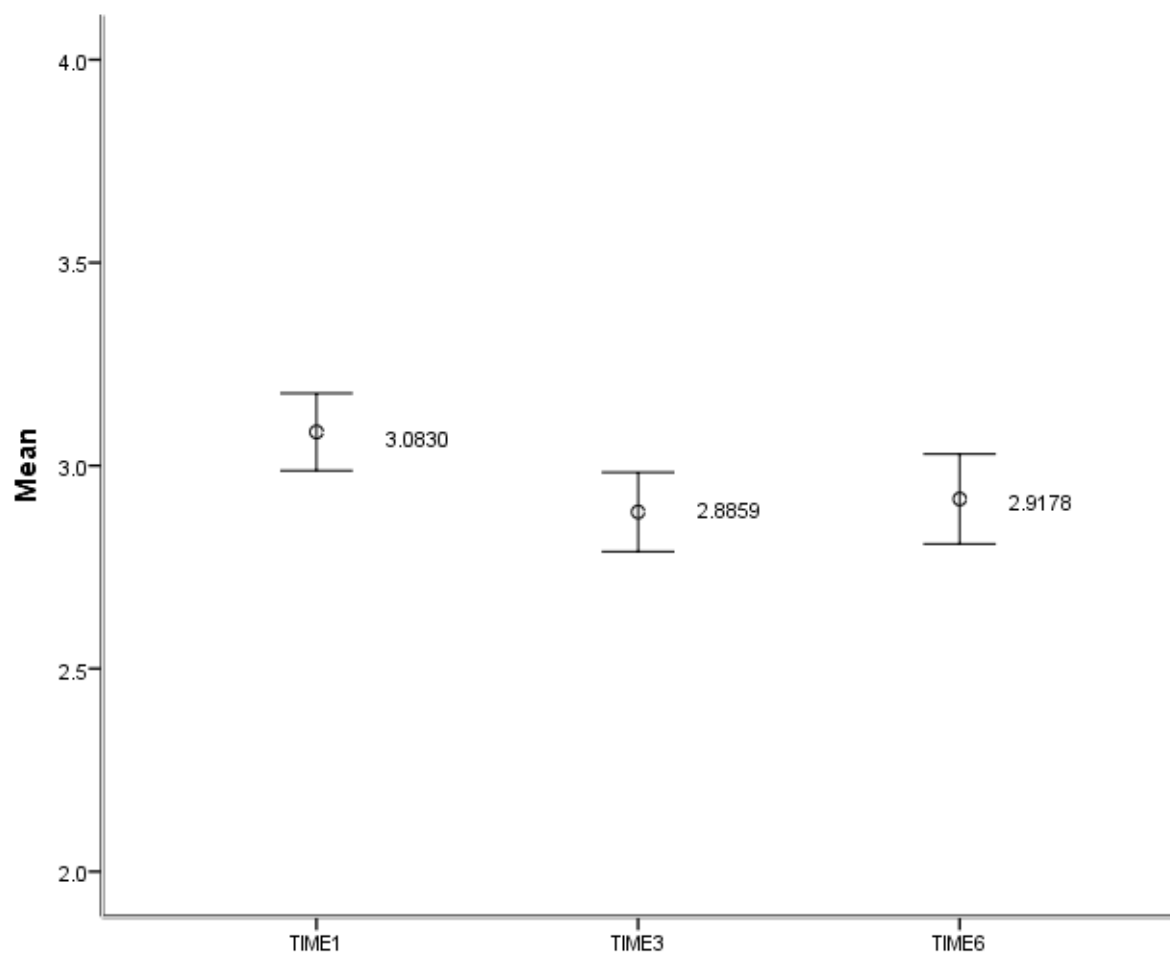


Figure 5.7. Mean Integrated Regulation from Times 1 to 3 to 6.

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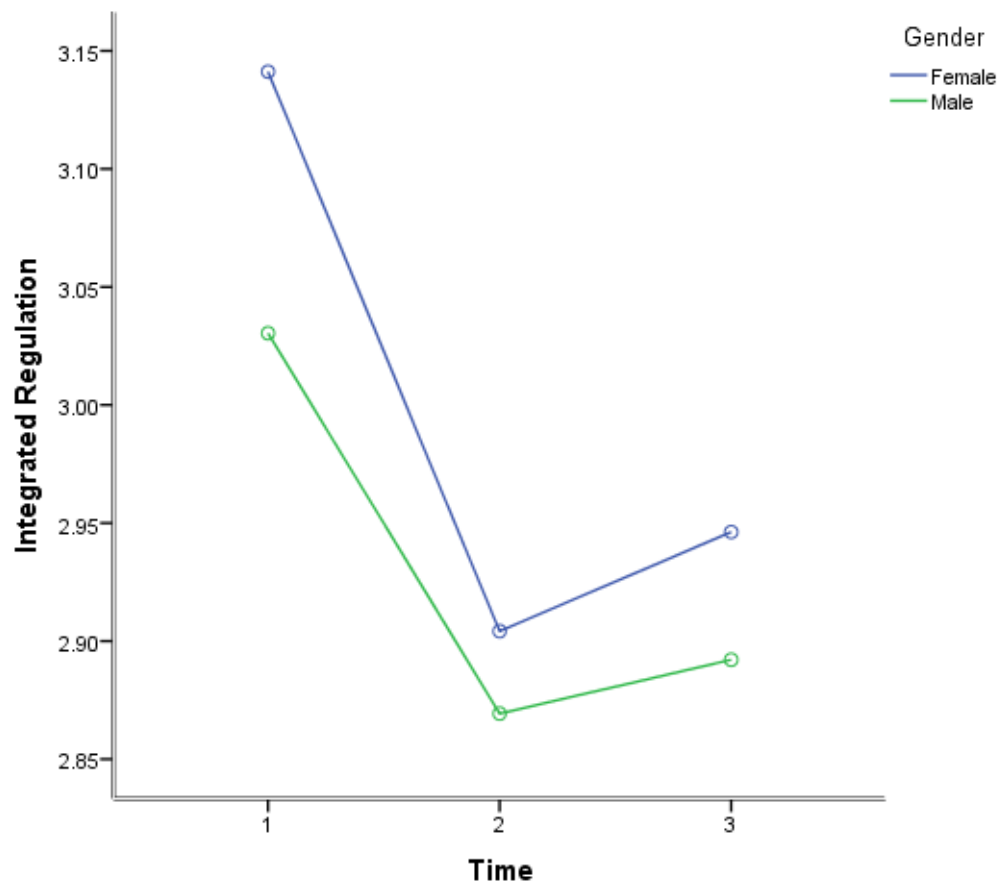


Figure 5.8. Mean Integrated Regulation for the boys and girls from Times 1 to 3 to 6.

In summary, the statistical analysis results reveal a shift in the motivations of the pupils as they progressed from Primary 3 to Primary 5 though the effect size of the shift was small. The ratings of the pupils for external and introjected regulation decreased over time, and those for identified and integrated regulation increased slightly over time. This shift in pupil regulation over time supported the hypothesis that there would be a shift in the pupils' motivation as they progressed through their primary school years.



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## Chapter 6 Discussion

### 6.1 Introduction

With the results analyzed in Chapter 5, this chapter, Chapter 6 begins by summarising the results of the study. It then considers how the results can be integrated with various other studies of motivation and explains the results in terms of the shifts in external, introjected, identified, and integrated regulation of the boys and girls under consideration. This explanation is followed by a discussion of the theoretical implications of the results. The practical implications of the study are then discussed along with its limitations. Finally, future study directions are considered and the study is concluded.

This study aimed to measure the shifts in the motivation of children as they progressed from Primary 3 to Primary 5. This involved measuring how their external, introjected, identified, and integrated regulation shifted as they progressed through their primary school years. It was expected that in general, the ratings for identified and integrated regulation would increase and the ratings for introjected and external regulation would decrease over time.

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## 6.2 Overall Results

The results of the study support the hypothesis that pupils' motivation levels shift as they progress through their primary school years though the effect size of this shift in their motivation levels was small. Although the motivation of the pupils under consideration shifted as they progressed through their primary school years, in general, the level of non-self-determined forms of extrinsic motivation (external and introjected regulation) of both the boys and girls was lower in Primary 5 than in Primary 3. As for their self-determined forms of extrinsic motivation (identified and integrated regulation), the girls' identified and integrated regulation was lower in Primary 5 than in Primary 3. For the boys, only their integrated regulation was lower in Primary 5 than in Primary 3. Their identified regulation was slightly higher in Primary 5 than its initial level in Primary 3. However, the increase in identified regulation for the boys was not statistically significant.

Both the boys and girls showed a decline in their external regulation as they progressed from Primary 3 to Primary 5. However, the manner in which this regulation declined differed slightly between the boys and girls. The boys' external regulation showed a gradual decline as they progressed from Primary 3 to Primary 5. There was a slight decline in the girls' external regulation when they progressed from Primary 3 to Primary 4. However, when they progressed from Primary 4 to Primary 5, their external regulation showed a sharp decline.

Both the boys and girls showed a decline in their introjected regulation as they progressed from Primary 3 to Primary 5. However, the manner of decline differed between the genders. The boys' introjected regulation showed a steady decline as they progressed from Primary 3 to Primary 5. However, the girls differed in terms of the shift in their introjected regulation. As they progressed from Primary 3 to Primary 4, there was a slight increase in their introjected regulation. However, from Primary 4 to Primary 5, their introjected regulation showed a sharp decline.

The girls showed a sharp decline in their identified regulation as they progressed from Primary 3 to Primary 4. As they progressed from Primary 4 to Primary 5, the decline in their

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introjected regulation became gradual. The boys also showed a slight and gradual decline in their identified regulation. As they progressed from Primary 4 to Primary 5, their introjected regulation showed a slight increase. When measured at the end of Primary 5, the boys' introjected regulation exhibited a slight upward shift compared with the measurement starting point in Primary 3.

Both the boys and girls displayed a sharp decline in their integrated regulation as they progressed from Primary 3 to Primary 4. However, as they progressed from Primary 4 to Primary 5, the shift seemed to gradually increase. Both the boys and girls had similar downward and upward movements in their integrated regulation as they proceeded from Primary 3 to Primary 5.

The girls seemed to have higher starting points in their self-determined forms of extrinsic motivation, i.e., identified and integrated regulation, than the boys. The boys seemed to have a higher starting point in their non-self-determined forms of extrinsic motivation, i.e., external and introjected regulation, than the girls. The starting point of the measurement of both their self- and non-self-determined forms of extrinsic motivation started when the pupils were at the Primary 3 level. However, at the Primary 5 level, where the measurement of the shifts in all of their regulations stopped, the girls had a lower level of external and introjected regulation than the boys. The girls seemed to have higher levels of identified and integrated regulation at the point where the study stopped.

Elementary schoolchildren's declining motivation in their school subjects has been noted for decades. However, not many studies have explored the reasons why this motivation declines as the children progress through their school years. In a large-scale study of 3,000 Oregon pupils and their attitudes towards school and school subjects, Haladyna and Thomas (1979) found a large-scale decline in elementary schoolchildren's motivation in virtually all subjects from Grades 1 to 8. This decline in motivation was found in both boys and girls. In terms of grade level, the finding is equivalent to that associated with Primary 1–6 children in the Singapore school under examination. Prawat, Grissom and Parish (1979) also found a decline in motivation among schoolchildren and the relationship between affect and academic performance. The study was carried out with 499 children comprising both boys and girls from elementary, middle, and high school. The results indicated that the

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motivation of both boys and girls declined in elementary school, stabilised in middle school, and increased when the pupils were in high school.

In her study of a new self-report scale for children's intrinsic vs. extrinsic orientation towards learning and mastery in the classroom, Harter (1981) mentioned that school culture might have influenced children to adopt a more extrinsic orientation. Furthermore, she stated that a child's motivation to perform in school was becoming less extrinsic with age, although their motivation in other domains at school might not have shown this trend. These domains included social relationships, sports, and other extracurricular activities. The decline in the more self-determined forms of extrinsic motivation in school and homework among the pupils who progressed from Primary 3 to Primary 4 in this study could have similarly been caused by an increased motivation in other forms of activities the children were exposed to in school.

Anderman and Maecher (1994) also mentioned that children's motivation to learn declined as they progressed through their school years. They stressed that this decline could have been caused by the psychological climate of the school, which emphasised grades and performance. The organisation of classes and how they were carried out also influenced the motivation of the children. The authors mentioned that children in elementary classes spent most of their time in one classroom and with one teacher, who was the sole person influencing their motivation to learn. In high school, the children moved about from class to class for different subjects. Their motivation to learn was hence influenced by peer groups and the culture of the school. The authors added that in spite of the efforts of an individual teacher stressing the value of learning for its own sake, such efforts could be undermined if the school culture emphasised grades, competitions, and rewards. As such, the children's motivation to learn would decline. Similar to Anderman and Maecher's (1994) discussion, the pupils involved in this study moved from classroom to classroom to take subjects such as Mathematics and Science. Together with the school culture's emphasis on grades, it is not surprising that the motivation of the children declined as a whole as they progressed through their primary school years. This declining motivation is examined in detail in the next section.

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In their Fullerton longitudinal study of 139 children, Gottfried, Fleming, and Gottfried (2001) also observed a declining motivation among children as they progressed through their school years. The authors found that academic intrinsic motivation decreased significantly from middle childhood through late adolescence. The greatest decline occurred in Mathematics, Science and Reading. However, academic intrinsic motivation appeared to be stabilised by the time the children were 16 years of age, and in some instances there were slight increases in intrinsic motivation. The results of the present study similarly exhibited a decline in all forms (self- and non-self-determined) of extrinsic motivation as the pupils progressed from Primary 3 to Primary 4, with the exception of girls, whose introjected regulation increased during the period. As the pupils progressed from Primary 4 to Primary 5, the non-self-determined forms of extrinsic motivation of both boys and girls declined further. However, as the study ended when the children were in Primary 5, it is unknown whether their non-self-determined forms of extrinsic motivation will decline further in the future. As for their self-determined forms of extrinsic motivation, the results reflected a slight increase when the pupils progressed from Primary 4 to Primary 5. However, whether this trend will stabilise or increase further remains unknown. Possible reasons for this shift in motivation are discussed later in this chapter.

In their study of the effects of examinations on pupils' interest in their subjects before an examination and after knowing their examination results, Remedios, Ritchie, and Lieberman (2005) found that the motivation of pupils decreased significantly. Comparing the motivations of pupils who took transfer tests with those who did not, they attributed the decrease to the examinations. The authors concluded that examinations could provide a valuable tool for assessing academic progress while also decreasing pupils' interest in the subjects they studied. The results of the current study are similar to the results of Remedios, Ritchie, and Lieberman (2005). In the current study, the pupils had to take examinations twice a year in each primary school year to progress to the next primary level. The decrease in both the self-determined and non-self-determined forms of extrinsic motivation (with the exception of the girls) when the pupils progressed from Primary 3 to Primary 4 might have been caused by the academic rigours the pupils faced in school.

Lepper, Iyengar, and Corpus (2005) studied the age differences in intrinsic and extrinsic motivation and the relationships of these motivations to academic outcomes based

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on 797 pupils in Grades 3–8 from two public schools. They found that intrinsic motivation was highest among third graders and lowest among eighth graders. Although the level of extrinsic motivation did not differ between the third and eighth graders, the children's intrinsic motivation to study decreased as they progressed through their school years. Lepper, Iyenger and Corpus's (2005) results are similar to those of the current study, which found that the self-determined forms of extrinsic motivation of the pupils declined as they progressed from Primary 3 to Primary 4. From Primary 4 to Primary 5, the pupils' self-determined forms of extrinsic motivation seemed to increase. However, it remains to be seen whether this form of extrinsic motivation will increase further when the pupils progress to Primary 6.

Lieberman and Remedios's (2005) study of pupils at a Scottish university found that the pupils' motivation to master their subjects declined as they progressed through their university years. Their study raised questions as to whether grade pressures undermined the pupils' interest in their studies. A similar question can be asked of the current study, in which the pupils' self- and non-self-determined forms of extrinsic motivation declined as they progressed from Primary 3 to Primary 4. The pressure to perform and attain grades expected by the school, teachers, and parents might have led to a decline in both forms of motivation among the pupils.

Lau (2009) also witnessed a declining motivation among schoolchildren as they progressed through their school years. The study, which involved 1,794 pupils from primary, junior, and senior secondary schools, revealed that pupils' extrinsic and intrinsic motivation declined as they progressed through their school years. The author stated that although the pupils' intrinsic motivation was undermined by an increasingly competitive and performance-oriented school environment as they progressed from the primary to secondary levels, the pupils did not become more extrinsically oriented. Lau (2009) speculated that the decline in motivation among the pupils could have been the result of adolescents placing less value on academic activities and looking for alternatives in other areas. The study concluded that the rewards and contingencies that parents and schools provided might have lost power over time. Lau's (2009) study is the closest to the current study, as both explored the motivation levels of pupils from Asian cultures and yielded the same result: the motivation

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levels of pupils declined as they progressed through their school years. The issue of declining motivation and speculation over its reasons are discussed later.

The results of the current study are also similar to those of Gillet, Vallerand, and Lafrenière (2012), who investigated intrinsic and extrinsic motivation and amotivation at school as functions of age. In their study of 1,600 pupils at elementary and high schools, they found that non-self-determined extrinsic motivation decreased in pupils up to 12 years of age and self-determined extrinsic motivation decreased in pupils up to 15 years of age, at which point the respective motivation levels stabilised. They also found that extrinsic motivation was systematically higher than intrinsic motivation throughout elementary and high school. This finding is similar to that of the current study, which found a downward trend in external and introjected regulation when the pupils progressed from Primary 4 to Primary 5. However, it is unknown whether the external and introjected regulation of the pupils involved in this study will decline further or stall and stabilise after they reach 12 years of age. Furthermore, it is unknown whether their self-determined forms of regulation, i.e., identified and integrated regulation, will increase further until after their primary school years or stall and show a stabilising trend when they reach Primary 6.

The declining motivation among children as they progress through their primary school years is not confined to academic subjects. It can also be extended to children's attitudes towards physical education. In their investigation of 207 children over a 2-year period, Xiang, McBride and Jian Min (2004) found that the children's motivation towards physical education declined as they progressed through their elementary school years. The study was conducted when the children were in Grades 2 and 4 and completed towards the end of Grades 3 and 5, respectively. In Grade 2, the children tended to see subjective task values as a motivating force for engaging in physical activities. However, in Grade 5, the children were likely to be motivated by multiple factors such as task- and ego-oriented goals, expectancy-related beliefs and subjective task value. This signalled a shift in the children's motivation as they progressed through their elementary school years. The current study found similar shifts in both the self- and non-self-determined forms of extrinsic motivation as the pupils progressed through their primary school years. The possible reasons for these shifts are explored in detail in the next section.

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### 6.2.1 Shift in External Regulation

The shift in the pupils' external regulation as they progressed from Primary 3 to Primary 5 was consistent in both boys and girls in all three of the timeframes measured. Between Times 1 and 6, there was a significant shift in both the boys' and girls' external regulation. However, between Times 1 and 3 and Times 3 and 6, the shift in their external regulations did not differ significantly. Both the boys and girls reported similar shifts in their external regulation, and there were no significant gender-related differences in their shifts in external regulation. The mean results reveal that the external regulation of both the boys and girls declined when they progressed from Primary 3 to Primary 5. However, this decline had a small magnitude, as its effect size was considered small according to Cohen's (1992) criterion. The external regulation of the boys declined steadily as they progressed from Primary 3 to Primary 5. For the girls, the decline in their external regulation was less steep when they progressed from Primary 3 to Primary 4. However, as they progressed from Primary 4 to Primary 5, the slope of the decline in their external regulation was similar to that of the boys.

The decline in external regulation for both the boys and girls as they progressed from Primary 3 to Primary 4 may point to a decline in their reliance on rewards for the completion of schoolwork or homework. The pupils might have handed in or completed their assigned work for reasons other than avoiding the undesirable consequences of punishment from teachers and even their parents. They also could have handed in work of higher quality. Although the pupils' external regulation decreased as they progressed from Primary 3 to Primary 4, their self-determined forms of motivation (identified and integrated regulation) were expected to increase gradually. This would have meant that the pupils were more self-determined in completing their schoolwork and homework, rather than completing it for the sake of a reward or to avoid unpleasant consequences. However, this was not the case, as the pupils' self-determined forms (identified and integrated regulation) of motivation actually decreased as they progressed from Primary 3 to Primary 4 and their external regulation decreased. The amotivation of the pupils could have increased when they progressed from Primary 3 to Primary 4. Otis, Grouzet, and Pelletier (2005) noted an increase in amotivation



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in their longitudinal study of pupils transitioning from junior high school to senior high school.

Otis, Grouzet, and Pelletier (2005) also found a pattern of change in extrinsic motivation, where non-self-determined forms of extrinsic motivation were marked by a steady decline as children progressed from junior high school to the second year of senior high school. They also reported that the amotivation of the pupils increased when they transitioned into senior high school. The authors speculated that pupils' reasons for going to school became less important as they progressed into senior high school. Wigfield and Eccles (1994) affirmed this speculation, observing that pupils in senior high school attached more importance to non-academic rather than academic activities.

The pupils in this study might have attached a higher importance to non-academic activities in school when they progressed from Primary 3 to Primary 4. At the start of the school term in Primary 3, the pupils were strongly encouraged to join co-curricular activities. These activities might have included sports groups, uniformed groups, or clubs. The pupils met for their co-curricular activities once or twice a week, depending on the activity's schedule, in the afternoon after school curriculum hours. They participated in the activities the teachers had planned for them in the hopes that the pupils would learn life skills that enabled them to become socially responsible and resilient when they grew up.

In all government schools, pupils at the Primary 3 level are strongly encouraged to join a co-curricular activity. These activities can include a society or a club, a sports group, a visual and performing arts group or a uniformed group, depending on the activities provided by the school. These activities are held after school curriculum hours. They form part of a character-building programme that aims to develop pupils' characters and enables them to become responsible adults. To further develop the competitive nature of the pupils, all of these co-curricular activities have inter-school national competitions in which the pupils take part (MOE, 2015).

One of these inter-school national competitions is the Singapore Youth Festival (SYF) Awards. Conceptualised in 1966, the SYF Awards competition is an annual event organised by the Ministry of Education to showcase talent in the performing arts in seven areas: arts and crafts, band, Chinese orchestra, choir, dance, drama, and instrumental ensembles. The

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participants in these co-curricular activity competitions compete for gold with honours, gold, silver, and bronze awards (MOE, 2015). Co-curricular activities involving sports such as basketball, track and field, and soccer build to inter-school competitions in which participants compete for gold, silver, and bronze awards (ibid, 2015). Scouts, representing the only uniformed group in the schools, have annual competitions where they compete for gold, silver, and bronze awards in the Franks Cooper Sands Award competition (The Singapore Scouts Association, 2015).

In addition to emphasising academic results, the school considered in this study heavily emphasised developing the character of its pupils through co-curricular activities. In addition, the school was heavily involved in all of the national competitions held at the primary school level. Pupils participating in co-curricular activities such as Chinese dance and brass band had won gold awards in the SYF competitions. Sports groups such as soccer had also won several inter-school competitions. The sole uniformed group, i.e., the Scouts group, had also won silver awards in the annual Frank Cooper Sands Award. The pupils spent many hours after school curriculum time practising for these competitions. This emphasis on pupils doing their best to win gold awards for the school in their co-curricular activities might have led to the pupils attaching a higher level of importance to non-academic activities, causing a decrease in their motivation in academic subjects in turn. The pupils might not have been motivated to do their schoolwork and homework, even when presented with the promise of rewards or the threat of punishment. They might have shifted their attention towards co-curricular activities they had joined and become more extrinsically motivated to win awards for these activities. However, this reason for the decrease in external regulation is merely speculative. The real reason for the decrease in the external regulation of the pupils can only be affirmed through qualitative interviews with the pupils.

The boys and girls did not view the external contingencies given to them for performing well in their studies as proximal, which might have caused the decrease in their external regulation when they progressed from Primary 3 to Primary 4. In their study of reading motivation and rewards among elementary schoolchildren, Marinak and Gambrell (2008) found that pupils who were given proximal rewards and pupils who were not given rewards were more motivated to engage in subsequent reading than pupils who received less-proximal rewards. Although Marinak and Gambrell (2008) explored the intrinsic type of

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pupil motivation, the implications are similar for the pupils in the present study. The pupils in this study might have been given rewards by both their teachers and parents whenever they performed well on their schoolwork and homework. This could have accounted for the high external regulation scores when first measured. The pupils displayed a high yearning for rewards at the start of the study, made apparent by their high external regulation scores. Pupils are often given rewards for performing well on their schoolwork and homework, especially pupils at a lower primary level, where teachers give rewards as a form of encouragement. The pupils in this study were not strangers to tangible rewards given for work done well. The rewards given by the teachers probably comprised sweets and tokens that could be exchanged for sweets at the end of a certain timeframe. However, such rewards were not proximal to the pupils, and they did not have a choice as to which rewards they preferred. As a result, the pupils might have considered these rewards as distal. With the passage of time, such rewards might have lost their attractiveness, and the pupils might not have viewed them as important determinants of the completion of their schoolwork and homework. This could have resulted in the decrease in external regulation as the pupils progressed from Primary 3 to Primary 4.

The school as a whole also practised the habit of rewarding pupils who performed well in their studies. It handed out rewards as a form of encouragement to pupils who performed well or showed improvement in their schoolwork over their six years in primary school. Such rewards were given out to the pupils at the end of each school year, starting from Primary 1 during the school's annual prize-giving ceremony. These rewards usually consisted of cash vouchers the pupils could use to buy stationery or books of their choice. However, the amounts of these cash vouchers were usually insufficient for purchasing items the pupils fancied. As such, the pupils had to top up this shortfall with their own money. Over the years, the pupils might have come to view these rewards as unimportant, which might have led to the steady decline in their external regulation. This explanation for the decline in the external regulation of the boys and girls when they progressed from Primary 3 to Primary 4 is merely speculative. The actual reason for the decline during this period can only be determined through a qualitative study of the pupils.

The decline in external regulation of both the boys and girls when progressing from Primary 3 to Primary 4 could have also been caused by the pupils growing old and receiving

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fewer rewards and less praise from their parents for completing their schoolwork and homework. This reflects the expectations of the pupils' parents, who might have expected their children to be autonomous in the completion of their schoolwork and homework. As their children grew older, the parents' expectations might have changed. The parents might have expected their children to do their homework on their own without much supervision. This heightening of expectations could have been caused by the parents feeling that their children were mature enough to handle their homework on their own with little supervision. Hence, the parents might not have felt that they needed to offer praise or even rewards to entice their children to complete their homework. On the part of the pupils, the lowered level of external contingencies from their parents might have lowered their expectancy of receiving rewards for completing their homework. Over the years, as they progressed from Primary 3 to Primary 4, this lowered reward expectancy could have been further reinforced, further decreasing their external regulation as a result. However, this justification of the lowered external regulation of the pupils is merely speculative. The real reason can be established only by conducting interviews with the pupils and their parents.

The role that caregivers at pupil care centres play in pupils' homework might have also affected the pupils' motivation. Most of the pupils went to a pupil care centre after school and were cared for by the centre's caregivers. To ease the burden of leaving children unsupervised after school hours and allow both parents of a child to join the workforce and hence improve the productivity of the country, the Singapore government authorised private operators to establish pupil care centres throughout Singapore. These centres serve as a place of rest and caregiving for children from Primary 1 to Primary 6 after school hours. They provide basic care services to school-going children whose parents work full time. The pupils go to these centres after school hours and stay until their parents pick them up after work. Some of these pupils also stay at the care centres on Saturdays from 7:30 a.m. until 5 or 6 p.m., when their parents pick them up (Ministry of Social and Family Development, 2014).

Most of the pupils involved in this study had parents who worked full time. As a result, most were placed in pupil care centres after school hours. These pupils spent their after-school hours at the care centres until after their parents were off work and picked them up. Most of the pupils spent their entire Saturdays and completed their homework at the care

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centres. Although the care centres were supervised, the caregivers might not have provided any external contingencies to encourage the pupils to complete their homework. These pupils might have also been left unsupervised when completing their homework. As a result, they might not have expected any external contingencies, an expectation reinforced by a lack of praise. The lack of tangible rewards or praise for the Primary 1 pupils might have affected their motivations. They might have been amotivated in their work since Primary 1, and given the increased academic rigours they faced as they progressed through their foundational years to more academically advanced and demanding years, their motivation in their work might have been entrenched by the time they progressed to Primary 4. This is mere speculation, and the actual reason for the decline in external regulation can only be determined through a thorough investigation that considers any signs of amotivation among the pupils in their academic work.

The decline in external regulation of both the boys and girls when they progressed from Primary 3 to Primary 4 could have been due to the pupils simply being too tired to complete the work given to them. This might have been especially true for the completion of homework, as the pupils were also likely to be involved in remedial and supplementary classes organised by their schoolteachers after school hours. The pupils might have suffered from fatigue. Supplementary and remedial classes are typically held after school on weekdays as extra lessons to allow teachers to remediate pupils on subjects they are weak in. Such lessons also allow teachers to continue with lessons they are unable to complete during curriculum hours. In the school in which the study was conducted, supplementary lessons were held almost daily for Primary 3, 4 and 5 pupils and each lesson lasted about two hours. During these lessons, teachers often gave extra schoolwork and at times even homework to the pupils. Upon completion of the lessons, most of the pupils then proceeded to the pupil care centres, where they stayed until their parents picked them up. Burdened with extra work, these pupils might have considered doing homework a chore. Some of the pupils might have found it too exhausting to complete the homework despite their attempts to do so. After repeated failed attempts to complete their homework as a result of fatigue, the pupils might not have bothered handing in their work on time despite any external contingencies the teachers may have subjected them to. This is akin to learned helplessness, a concept in which individuals who experience repeated failures when attempting to escape from threatening conditions may simply stop doing so (Zimbardo, Johnson, & McCann, 2014).

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This experience of learned helplessness can lead to a steady decline in both the self- and non-self-determined forms of extrinsic motivation as pupils progress from Primary 3 to Primary 4. However, the possibility that the pupils in this study suffered from learned helplessness due to fatigue is again speculation. Determining the real reason behind the decline in external regulation would require detailed interviews with these pupils to.

Stress, a condition involving disequilibrium in the interaction between environmental stimuli and the individual's resources to cope with the stimuli (Sulsky & Smith, 2005), might have been an issue causing the external regulation of the pupils to decline. The transition from kindergarten to Primary 1 is a major life event for a pupil. In this study, some of the pupils might not have attended kindergarten and gained entry into primary school upon reaching the compulsory school-going age. The shock and excitement of the new role or roles the pupils began to play and the unfamiliar environment they were expected to assimilate into were probable causes of stress in the pupils. The new social relationships that pupils enter into with their new classmates and teachers when they first enter Primary 1 also typically cause stress in pupils. This stress is added to the stress of the academic rigours pupils must undergo in their primary school years (Zimbardo, Johnson, & McCann, 2014). Pupils may not effectively resolve all of the sources of stress they face when they start their school years in Primary 1, resulting in a decline in their motivation in schoolwork, even at the Primary 1 level. They can carry these sources of stress over to Primary 2 and even into their remaining primary school years. Such stress can be exacerbated further when added to the stress of the increasing academic rigours pupils face as they progress through their primary years. These academic rigours include examinations and tests held throughout the school year. In addition, there are new topics to be learned and school and homework to be completed. The result of the stress may lead to a decline in the pupils' external regulation and perhaps all non-self-determined and self-determined forms of their extrinsic motivation.

The pupils may have a low perceived competency as a result of this stress, a condition that can be considered as amotivation from the viewpoint of organismic integration theory, a sub-theory of self-determination theory (Ryan & Deci, 2000). In a study of college pupils, Bolger (1997) found that pupils experienced a pattern of stress throughout a school year that peaked at the beginning, middle and end of each term and that the stress level among pupils was highest during the final-year examination period. Pupils in primary schools in Singapore

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must take examinations and tests for every subject they take in school. These tests and examinations serve as a benchmark to demonstrate the pupils' competency in their subjects and the remediation they must take to improve on the subjects further if they fail to perform well. In addition, pupils in Singapore primary schools spend two years after their foundational years in Primary 5 preparing for their final examination, i.e., the Primary School Leaving Examination, which is held at the Primary 6 level. The Primary School Leaving Examination determines the type of secondary school and stream (express, normal, or normal technical) the pupils will progress into after their primary school years. The need to assimilate and socialise and the added academic rigours may cause a great deal of stress in primary school pupils, and this stress may lead to a decline in their motivation.

The pupils involved in this study might have felt the stress of attending their first day of school in Primary 1, given that doing so is a major life event. Some of these pupils might not have attended kindergarten, as any schooling before Primary 1 does not fall under the Compulsory Education Act (Committee on Compulsory, 2000). Furthermore, in a bid to enable the pupils to socialise with other pupils at the same primary level, the school implemented the practice of changing pupils' classes annually as they progressed through their primary years. This practice of changing classes lasted until the pupils reached Primary 5, upon which the classes were finally stabilised and the pupils progressed into Primary 6 together as a class. This practice of changing classes resulted in pupils having to assimilate into their new social environment annually. The need to adjust to a new social environment annually might have caused stress in the pupils. When added to other increasing academic rigors, such stress could have led to a decline in the pupils' motivation. This issue of stress is again merely speculative. Future studies must explore whether the pupils were indeed stressed by the rigours of school and hence experienced a decrease in external regulation.

As the external regulation of both the boys and girls declined when they progressed from Primary 4 to Primary 5, the boys' self-determined forms of extrinsic motivation (identified and integrated motivation) increased during the period. For the girls, only their integrated regulation increased when they progressed from Primary 4 to Primary 5. The boys were more intrinsically motivated in their schoolwork and homework from Primary 4 to Primary 5. However, this form of motivation remained extrinsic, as they continued to depend very much on externally regulated effects to do their schoolwork and homework. The

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probable reason for this shift from a non-self-determined form of extrinsic motivation towards a more self-determined form as the boys progressed from Primary 4 to Primary 5 is discussed later in this chapter. The girls' integrated regulation showed an upward trend and their introjected and identified regulation showed a downward trend. The girls remained rather amotivated in their schoolwork and homework. This issue is also discussed in Chapter 6.2.3 and Chapter 6.2.4.

Stress, fatigue, decreasing rewards, reward proximity, and interest in other social activities might have led to a decrease in the external regulation of the pupils in this study. Their decrease in introjected regulation might have also been affected by stress, decreasing rewards and perhaps reward proximity. This issue is discussed in detail in the next section.

It is unknown whether both the boys' and girls' levels of external regulation will continue to decline throughout their primary school years or whether they reached a stabilisation point at the Primary 5 level. Gottfried, Fleming, and Gottfried (2001) found that pupils' external regulation came to a point of stabilisation after a period of decline. However, it is suspected that the pupils' external regulation may decline further when they progress to Primary 6 and secondary education, as their integrated regulation showed signs of an upward trend. A clearer picture of how the pupils' external regulation will progress may be attained if the study is extended another year to measure their levels of external regulation after their Primary School Leaving Examination, which they will take in Primary 6 at the end of the school's last semester.



### 6.2.2 Shift in Introjected Regulation

Measurement revealed a significant shift in the pupils' introjected regulation from Time 1 to Time 3 to Time 6 with a small effect size. This shift in introjected regulation was consistent in both the boys and girls over the three timeframes as they progressed from Primary 3 to Primary 5. Both the boys and girls reported similar shifts in their introjected regulation, and there were no significant gender-related differences in the results. According to the mean results, the boys reported a steady decline in their introjected regulation as they progressed from Primary 3 to Primary 5. Although the girls reported a slight increase in their introjected regulation when they progressed from Primary 3 to Primary 4, the increase was very slight, and their introjected regulation also declined from Primary 4 to Primary 5. In general, the introjected regulation of all of the pupils declined as they progressed from Primary 3 to Primary 5.

The decline in introjected regulation of the boys in all three of the timeframes may lead one to expect that as the pupils progressed through their primary school years, there was a decrease in their non-self-determined forms of extrinsic motivation and an increase in their self-determined forms of extrinsic motivation. However, this was not the case. The boys' self-determined forms of extrinsic motivation (identified and integrated regulation) also showed patterns of decline as they progressed from Primary 3 to Primary 4. Although their identified and integrated regulation increased somewhat as they progressed from Primary 4 to Primary 5, the increase was very slight. This issue is discussed later.

However, a slightly different shift pattern was seen in the girls' introjected regulation as they progressed from Primary 3 to Primary 5. There was a slight increase in the girls' introjected regulation as they progressed from Primary 3 to Primary 4. However, from Primary 4 to Primary 5, their introjected regulation took a steep decline, and they had a lower level of introjected regulation at the Primary 5 level than the boys. There was no interaction effect between the girls and boys in terms of their introjected regulation, as the difference in introjected regulation between the girls and boys at the Primary 5 level was negligible.

The need for self-worth, pride, self-esteem, or the avoidance of guilt and anxiety to complete one's work describes introjected regulation (Deci & Ryan, 2000). One may expect

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that the decrease in the boys' introjected regulation when they progressed from Primary 3 to Primary 5 was caused by the boys being more interested in their studies and that their knowledge of the importance of doing their schoolwork and homework increased as they progressed through their school years. However, this was not the case when the boys progressed from Primary 3 to Primary 4, as both their identified and integrated regulation decreased. However, their identified and integrated regulation increased when they progressed from Primary 4 to Primary 5. This may explain why their introjected regulation declined during the same period.

The decline in the need for recognition from teachers and parents for schoolwork and homework to improve one's self-worth and self-esteem or even avoid feelings of guilt and anxiety over incomplete work may signal that the boys recognised the importance of such work and were willing to do it on their own without receiving affirmation from their teachers or parents. It may also signal that the boys took an interest in the subjects they were taking and hence found their schoolwork and homework interesting. However, the decline in their identified and integrated regulation when they progressed from Primary 3 to Primary 4 does not indicate that the boys indeed found their schoolwork and homework important. Furthermore, they did not move towards being more intrinsically motivated in their work. Their external regulation also decreased as they progressed from Primary 3 to Primary 4.

This decline in all forms of regulation as the boys progressed from Primary 3 to Primary 4 may indicate some form of amotivation that affected the boys during this period. However, the pupils might have engaged in some form of maladaptive behaviour in terms of their homework and schoolwork that led to a decrease in their introjected regulation. This maladaptive behaviour could have come from either the pupils themselves or the inability of the educational programmes to attune to the self-regulatory needs of the pupils (Bembenutty, 2011). According to Zimmerman, Bonner, & Kovach (1996, as cited in Bembenutty 2011), homework assigned adequately by teachers can enhance the development of self-regulation processes and the self-efficacy beliefs of pupils. It can also enhance goal-setting and time-management behaviour, manage the class environment, and maintain pupils' attention during lessons. However, to complete homework successfully, pupils must be self-regulated in setting homework goals. In addition, pupils must select appropriate learning strategies and maintain their motivation throughout the process of completing their homework. Pupils must

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also monitor the progress of their homework and evaluate the outcomes. This maladaptive homework behaviour might have led to a decline in the self-esteem and hence all forms of self- and non-self-determined extrinsic motivation of the boys considered in this study as they progressed from Primary 3 to Primary 4.

The maladaptive behaviour might have been due to the boys' use of ineffective strategies to deal with threats to their self-worth, anxiety, and guilt when they were unable to complete their work. These ineffective strategies might have in turn led to even lower self-esteem, heightened anxiety and guilt, and a feeling of incompetency over their homework and schoolwork, resulting in a decline in all self- and non-self-determined forms of regulation and perhaps an increase in amotivation. This is mere speculation, and more studies must be carried out to further understand the boys' attitudes towards their schoolwork and homework. The issue of maladaptive behaviour is discussed in more detail later, as overall there seemed to be a manifestation of such behaviour among the boys and girls due to their low levels of both self- and non-self-determined forms of extrinsic motivation.

The decline in the introjected regulation of the boys when they progressed from Primary 4 to Primary 5 could have signalled that they were beginning to take interest in their studies and that their need for self-worth and self-esteem and their guilt and anxiety over not doing their schoolwork was no longer that important to them. The suspicion arises that this decrease in introjected regulation was caused by increased interest and knowledge of the importance of schoolwork and homework given that the boys' identified and integrated regulation showed signs of increasing during the period. The boys' interest in their schoolwork and homework is discussed in more detail later. It is unknown whether the decrease in their introjected regulation will continue or stop at Primary 5 and reach some form of stabilisation. The reasons discussed for this increase and subsequent decrease in the boys' introjected regulation are mere speculation. The actual reason for these movements in their introjected regulation can only be revealed through in-depth interviews with the boys as they progress from Primary 4 to Primary 5.

The girls' introjected regulation seemed to increase slightly when they progressed from Primary 3 to Primary 4. This pointed to their need for self-worth and self-esteem, which led them to do their schoolwork and homework. However, they also might have done

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their schoolwork and homework to avoid unpleasant feelings of anxiety and guilt over not doing so. In other words, they might have been negatively reinforced to do their work. Negative reinforcement, which involves the removal of an unpleasant or aversive stimulus contingent on particular behaviour, might have forced the girls to do their homework or schoolwork and hand them in on time (Zimbardo, Johnson, & McCann, 2014). This is evident given that their more self-determined forms of extrinsic, identified, and integrated regulation decreased when they progressed from Primary 3 to Primary 4. This decrease in both self- and non-self-determined forms of regulations may indicate that they were unmotivated in their schoolwork and homework. The girls might have also experienced some form of amotivation. The girls might have also engaged in some form of maladaptive behaviour in terms of their homework, which would explain why all of their other self- and non-self-determined forms of extrinsic motivation decreased. However, it may simply be that they did not like the feelings of anxiety and guilt they experienced over not completing their schoolwork and homework. It could also be that the girls' need for self-esteem was important to them during this period. Some studies have found that girls are either rated lower than boys or that girls rate themselves lower than boys in terms of their self-esteem.

Clark, Robison-Awana, Bray, Kehle, and Jensen's (2011) study of the self-esteem of boys and girls aged 10–12 found that girls rated their self-esteem lower than that of boys. The study also found that boys rated girls lower in terms of self-esteem than girls rated boys. Quatman and Watson's (2001) study of the self-esteem of adolescents in Grades 8, 10, and 12 found that boys scored higher in global self-esteem than girls, perhaps because the girls had a feeling of lower self-esteem or were perceived to have lower self-esteem and developed a need for such esteem. The girls could have satisfied these needs only through completing their schoolwork or homework, as doing so would have made them feel good about themselves. Although Quatman and Watson (2001) focused only on adolescents and the girls involved in the current study were in their preadolescent years, the issue of this perceived lower self-esteem would have been established and accumulated, as the girls were very young. However, the deduction for this increase in introjected regulation among the girls when they progressed from Primary 3 to Primary 4 is merely speculative. Interviews with the girls are required to determine exactly why their introjected regulation increased during this period.

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The introjected regulation of the girls took a sharp decline as they progressed from Primary 4 to Primary 5. Their need for self-worth and self-esteem, and perhaps even their desire to avoid unpleasant feelings of anxiety and guilt over not completing their work, also seemed to decline. This decline in introjected regulation together with the decline in external regulation indicates that as the girls grow older, they will mature and realise the importance of studying and hence increase their interest in their schoolwork and homework. They will realise that schoolwork and homework should be completed for reasons other than to gain a sense of self-worth or avoid unpleasant feelings of anxiety and guilt. Hence, an increase in their identified and integrated regulation were expected. However, this was not the case, as their identified regulation declined during the period and their integrated regulation increased slightly as they progressed from Primary 4 to Primary 5.

The lowered introjected regulation of the girls could have been due to situationism, a condition in which environmental conditions influence one's behaviour as much as or more than their personal dispositions do under some circumstances (Zimbardo, Johnson, & McCann, 2014, p. 511). Some form of peer influence could have also led the girls to experience a decline in their introjected regulation, and this influence could have come from the boys. Both the boys and girls showed similar declining trends in their introjected regulation as they progressed from Primary 4 to Primary 5. The girls could have realised that the boys had a decreased need for self-worth and self-esteem or that the boys experienced a decline in their feelings of anxiety and guilt when they did not complete their schoolwork or homework. This realisation might have influenced the girls to follow suit. Some of the girls might have been influenced by the boys and influenced the other girls in turn. This might have also led the girls to have lower introjected regulation in cases where their completion of schoolwork and homework was not dependent on their esteem needs or their feelings of anxiety and guilt. They might have found their homework and schoolwork important and interesting given that everyone else was doing such work.

A number of studies have found that peer groups are the most significant contexts among adolescents and are similar in terms of their characteristics and behaviour. In addition, members of peer groups are similar in terms of their academic achievements and learning motivations (Cairns & Cairns, 1994; Hogue & Steinberg, 1995; Chen, Chang, & He, 2003; Kindermann, McCollam, & Gibson, 1996; Ryan, 2001, as cited in Kiuru, Aunola,

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Nurmi, Leskinen, & Salmela-Aro, 2008). Studies have also found that adolescents acquire a wide range of skills, attitudes, and experiences through their interactions with their peers. These interactions can take place in dyads where they are reciprocal between two peers, cliques in which small groups of adolescents hang out together and form close relationships and crowds in which the peer groups are reputation based or large collectives of stereotyped individuals. Studies have also found that girls' peer groups are typically more intimate and tightly connected than those of boys (Benson, 1990; Brown, 1989, 1990; Bukoski, Newcomb, & Hartup, 1996; Hinde, 1998; Rubin et al., 1998; Urberg, Degirmencioglu, Tolson, & Halliday-Scher, 1995, as cited in Kiuru et al., 2008). In their investigation of the extents to which peer group influence and selection caused school burnout, Kiuru et al. (2008) found that peer influence contributed to peer group similarities in school burnout. They also found that peer group members shared similar changes in school burnout over time, and that co-rumination, observational learning, and desires or pressures to conform might have been responsible for peer group influence on school burnout in adolescents (Bandura, 1997; Berndt, 1999; Rose 2002; Suls & Wheeler, 2000, as cited in Kiuru et al., 2008).

Although the pupils involved in this study were preadolescents, they were at the stage of becoming adolescents, especially when they were progressing from Primary 4 to Primary 5. Furthermore, as the pupils were in mixed gender classes, they formed peer groups of mixed genders. These peer groups consisted of pupils who were similar in terms of academic ability, behaviour, attitudes, and skills. As members of these peer groups, they co-ruminated with, observed, and influenced one another in their behaviour and attitudes both inside and outside class. It is likely that members of these peer groups influenced one another with their attitudes and behaviour, especially in terms of their homework and schoolwork. Furthermore, it is likely that these peer groups influenced the other peer groups to behave in a similar manner. As a result, both the boys and girls adopted similar attitudes towards their schoolwork and homework. Due to the influence of the boys in their peer groups, the girls might have adopted behaviour that led to a decline in their introjected regulation. However, care must be taken in this line of argument, as Urberg (1999) argued that similarity between friends and peer groups could come in several forms. First, individuals may select each other as friends due to similarities in their interests. Second, due to the mutual influence between the individuals, members of peer groups may become similar to each other. Lastly, outside relationships may be influential. For example, other peers in pupil care centres may

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influence an individual, and some members may bring that influence into a peer group. In this study, there might have been issues of conformity, with some of the girls conforming to the attitudes adopted by the boys. These girls might have influenced other girls to conform to these attitudes in turn. In a collectivistic Asian culture, the tendency to conform to a group dynamic is high (Zimbardo, Johnson, & McCann, 2014). Hence, there is typically some form of conformity among the pupils in a class who form groups.

However, it is unknown whether the introjected regulation of the girls will continue to decline when they progress onto Primary 6 or their introjected regulation reached a stabilising point at Primary 5 and will remain the same throughout their primary school years until they proceed onto secondary school. This discussion of the probable reason for the decline in the girls' introjected regulation is merely speculative. The real reason for the decline in the girls' introjected regulation when they progressed from Primary 4 to Primary 5 can only be determined with a more in-depth study of their self-esteem during this period.

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### 6.2.3 Shift in Identified Regulation

The statistical analysis results revealed no significant shift in the identified regulation of the boys and girls as they progressed from Primary 3 to Primary 4 and from Primary 4 to Primary 5. There was no significant difference in the shift in identified regulation between the boys and girls. There was also no interaction effect in the shift in identified regulation between the boys and girls. Although there was a decline in the identified regulation of both the boys and girls when they progressed from Primary 3 to Primary 4, the trends in those shifts differed when they progressed from Primary 4 to Primary 5. The girls reported a further downward shift in their identified regulation, and the boys reported a slight increase in their identified regulation during the period.

The sharp decline in the girls' identified regulation when they progressed from Primary 3 to Primary 4 could have been caused by their inability to see the importance of doing their schoolwork or homework. This decline raises the suspicion that the girls could have shifted their interests towards other social activities rather than towards school and homework matters. The suspicion is heightened by the observation that the decline did not happen alone, but rather together with integrated and external regulation. As discussed earlier, the girls could have experienced some form of amotivation in their studies. However, this does not typically translate to other forms of school activity. The girls might have placed a higher emphasis on other social activities at school (Wigfield & Eccles, 1994). Examples of such social activities include making new friends and getting to know them better, joining co-curricular activities or even getting involved in new sports activities. The girls might have determined that the importance of doing schoolwork and homework during this period did not surpass that of the other social activities in which they were involved at school.

However, this does not mean that the girls were completely ignoring both their schoolwork and homework. Although the girls might have concentrated on other activities, they completed their homework and schoolwork, perhaps out of the fear of feeling anxious and guilty. Furthermore, doing their work could have boosted their self-esteem and self-worth, enabling them to join in on other social activities at school with more confidence. This is evident in the increase in their introjected regulation during the period from Primary 3 to Primary 4. The lack of importance attributed to their schoolwork and homework may



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indicate that the girls handed in work of lower quality. However, this is speculation, and an in-depth study involving interviews with the girls may be required to determine the reasons for the decline in their identified regulation during the period.

However, the girls might have felt that doing schoolwork and homework or handing in good quality work was unimportant because the proximity of rewards for completing the work did not warrant it much attention. The teachers might have enticed their pupils with rewards such as tokens or small treats upon the completion of work or submission of good quality work. If the girls felt that the tangible rewards given were distal to their desires, they might have considered it needless to pay attention to the assigned work (Marinak & Gambrell, 2008). As such, the importance the girls placed on their work decreased. However, this does not mean that the girls did not complete any of their assigned work. As the increase in their introjected regulation during the period indicates, they completed their work. However, the work they handed in might not have been of good quality.

The decrease in identified regulation of the girls may have been caused by the stress of schoolwork and homework. As the girls progressed from Primary 3 to Primary 4, they faced rigorous academic demands from both their parents and teachers. This implies that their teachers assigned more demanding schoolwork and homework, that they faced additional remedial classes organised by their teachers at school, or that their parents signed them up for such classes outside the school curriculum. Their parents might have also signed them up for enrichment classes held on weekends. The girls participated in co-curricular activities held after school curriculum hours. Furthermore, the school was in the habit of changing the classes of all of the pupils as they progressed from Primary 1 to Primary 5. This means that the girls had to socialise with new classmates in a new environment, which served as a source of stress. All of these academic and non-academic activities added to their desires to socialise with their classmates and schoolmates, creating an atmosphere of stress among the girls over their homework and schoolwork. However, the girls might have experienced guilt and anxiousness over not completing their work, as indicated by the slight increase in their introjected regulation. This stress and desire to avoid feeling anxious and guilty might have led to the girls neglecting their academic endeavours and handing in homework and schoolwork of lower quality.

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The slope of decline in the identified regulation of the girls when they progressed from Primary 4 to Primary 5 interestingly became less steep. It could be that their introjected regulation reached a point at the Primary 5 level where their identified regulation became stabilised over their primary school years. It could also have been due to peer group influence, where the girls began to take note of the importance of their work due to the influence of the boys (Kiuru et al., 2008; Urberg, 1999). However, due to a drop in their introjected regulation over the period, the girls' identified regulation did not increase. This means that the girls might have known of the importance of schoolwork and homework during the period. However, due to the decrease in their guilt and anxiousness over not completing their homework or schoolwork or handing in work of poor quality, they did not deem it important to complete schoolwork or homework or hand in work of good quality, nor did they consider it a personal endeavour and an academic achievement. Although they had a general awareness of the problem, they did not take any action to improve it.

Over the period from Primary 3 to Primary 5, the girls might have engaged in maladaptive behaviour in terms of their homework, which might have led to the decline in their external, identified, and integrated regulation. However, due to their desire to avoid feeling anxious or guilty over not completing their schoolwork and homework, as evident in the increase in their introjected regulation when they progressed from Primary 3 to Primary 5, the girls could have handed in work of a lower quality than they were capable of submitting. Such feelings of anxiousness and guilt could have faded when the girls progressed from Primary 5 to Primary 6 (a sharp decrease in their introjected regulation). As such, they might have attached a lower sense of importance to schoolwork and homework.

This discussion of the reason for the declining identified regulation of the girls as they progressed from Primary 3 to Primary 5 is merely speculative. Determining the actual reasons for the downward trend in the girls' identified regulation in terms of their schoolwork and homework would require interviews with the girls. Furthermore, it is unknown whether the girls' identified regulation reached a stabilised point at the Primary 5 level and will remain the same throughout their primary school years. The girls' identified regulation may decline further or increase. However, it is suspected that it will remain stable throughout their primary school years, as they are taking the national examination at the Primary 6 level

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and may be pressured by their school, teachers, parents and even peers to take their schoolwork and homework seriously.

The boys' identified regulation declined very slightly when they progressed from Primary 3 to Primary 4. When they progressed from Primary 4 to Primary 5, their identified regulation showed an upward moving trend. The downward trend in their identified regulation of when they progressed from Primary 3 to Primary 4 can be attributed to the amotivation they experienced in their schoolwork and homework. This is made evident by the decline in their non-self-determined (external and introjected regulation) and self-determined (identified and integrated regulation) forms of extrinsic motivation during the period. The boys could have shifted their focus to other social activities at school rather than simply to academic subjects. As discussed earlier, Primary 3 was the year when pupils at the school under examination needed to join extra-curricular activities. The boys might have become more interested in such activities during this period rather than focusing on academic achievements. The boys' interest in doing well in their extra-curricular activities and especially sporting activities might have influenced them to shift their focus from academic achievements to sporting achievements. However, this does not mean that they became totally disengaged in their schoolwork and homework. The downward shift in their identified regulation during the period was very slight, indicating that they attached a fair bit of importance to completing their school and homework. However, this importance declined slightly due to a shift in focus.

The decline in the boys' identified regulation as they progressed from Primary 3 to Primary 4 can also be attributed to the stress they faced, which also led to a decrease in their external, introjected, and integrated regulation. The stress of moving from the foundational years (Primary 1 to Primary 3) to the more academically rigorous years (Primary 4 onwards) might have caused some form of stress in the boys. Furthermore, as discussed earlier, the school engaged in the practice of changing the classes of all of the pupils annually to allow them to socialise with as many pupils at their levels as possible. This changing of classes stabilised only when the pupils reached Primary 5, where the pupils remained in the same class until Primary 6. Such changes together with the academic rigours that continue to become more challenging over the years can cause boys to feel stressed and find completing their schoolwork and homework a chore. Some boys may even decide not to do the

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homework assigned to them and come up with excuses for not handing it in the next day. This can result in a decline in their identified regulation. In the current study, this decline complemented the decline in all of the boys' self- and non-self-determined forms of extrinsic motivation and indicated some form of amotivation in the boys.

The gentle slope of the decline in their identified regulation when the boys progressed from Primary 3 to Primary 4 implies that they attached some importance to completing their homework and schoolwork. The slope was much greater than that of the decline in identified regulation when the girls progressed from Primary 3 to Primary 4. This may mean that the boys were not as stressed over their academic endeavours. It may also mean that the boys were able to cope better with their stress over both academic and non-academic issues at school and were hence not as amotivated in their schoolwork and homework as the girls.

However, it is interesting to note that the boys' identified regulation showed an upward trend when they progressed from Primary 4 to Primary 5. This upward trend implies that the boys had an increased awareness of the importance of completing their schoolwork and homework. This increase in the identified regulation of the boys was followed by an increase in integrated regulation during the same period. This implies that the boys showed an awareness of the importance of and an increased interest in their schoolwork and homework. The boys were beginning to develop an awareness that handing in completed or good quality schoolwork or homework was beneficial to them academically, which might have encouraged their awareness of the importance of their work. They might have also developed the increased awareness that at the Primary 5 level they were working towards taking their national examinations at the Primary 6 level. Furthermore, the boys might have managed to have a higher level of self-efficacy and were beginning to better manage their homework and schoolwork. Peer pressure or the realisation that other boys were attaching importance to their schoolwork and homework when they handed in good quality work might have also led to the increase in the boys' identified regulation. A condition known as situationism (Zimbardo et al., 2014) might have led the boys to feel that their schoolwork and homework were becoming important and led to the increase in both their identified and integrated regulation. This shift towards a more intrinsic and self-determined form of motivation as the boys progressed from Primary 4 to Primary 5 is discussed later in the chapter along with the increase in their integrated regulation.

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As the pupils progressed from Primary 4 to Primary 5, the girls' identified regulation took a downward trend and the boys' identified regulation shifted upwards. It is unknown whether these trends will continue in the same direction when the pupils progress to Primary 6 and on to secondary school. However, it is suspected that the girls' identified regulation stabilised as their integrated regulation increased during the period. As for the boys, it is suspected that their identified regulation will continue to shift upwards, perhaps until their secondary school years. The movement of the identified regulation of the pupils as they progressed throughout their primary school years and the reasons for the current shifts in their identified regulations are merely speculative. A qualitative study is required to determine the reasons for the shifts in their identified regulation and how it will shift in the future.

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#### 6.2.4 Shift in Integrated Regulation

The results also revealed a significant shift in the pupils' integrated regulation between Times 1 and 6. There was also a significant shift in integrated regulation from Times 1 to 3. However, there was no significant shift in integrated regulation from Times 3 to 6. There was no significant main effect in terms of gender, as both the boys and girls reported similar shifts in integrated regulation. Furthermore, the shifts in integrated regulation over the three timeframes did not differ significantly between the boys and girls. According to the means result, both the boys and girls reported a decline in their integrated regulation from Times 1 to 3. From Times 3 to 6, there seemed to be a slight increase in their integrated regulation. However, this shift was small in magnitude (Cohen, 1988).

The decline in integrated regulation among the pupils as they progressed from Primary 3 to Primary 4 infers that their reasons for doing their schoolwork and homework were not internalised and that their extrinsically motivated actions became less self-determined. This could have meant that their non-self-determined forms of extrinsic motivation (external and introjected regulation) increased and that their identified regulation declined. However, such was not the case in this study. There was a decline in the extrinsic and introjected regulation of the boys (with the girls reporting a slight increase in introjected regulation). The identified regulation of both the boys and girls also declined. This decline together with the decline in all other self- and non-self-determined forms of extrinsic motivation, especially among the boys, can be attributed to the pupils' amotivation in their schoolwork and homework. Although the girls reported a slight increase in their introjected regulation, all of the other self- and non-self-determined forms of extrinsic motivation declined. This means that the girls were not motivated in their schoolwork and homework. However, they continued to do their work to avoid unpleasant feelings of anxiety and as a result might have handed in work of poor quality. For the boys, the decline in all forms of regulation clearly demonstrates that they were not motivated in their schoolwork and homework.

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As discussed earlier, the suspected amotivation in academic work, which could have led to the decline in integrated regulation of both the boys and girls as they progressed from Primary 3 to Primary 4, could have been caused by their increased involvement in other social activities at school. Such activities included joining and performing well in their co-curricular activities and perhaps getting to know their new classmates better. It could have also been due to the stress that led to a decline in integrated regulation for both the boys and girls as they progressed from Primary 3 to Primary 4. The stress caused by the increasing academic rigours of moving from the foundational years to the more academically advanced years might have caused some form of stress in both the boys and girls.

The stress caused by the increasing academic rigours experienced by the pupils while progressing from Primary 3 to Primary 4 could have led to both the boys and girls losing interest in their schoolwork and homework. This stress could have been caused by the examinations the pupils had to take twice annually. Remedios, Ritchie and Lieberman (2005) found that the pupils who underwent tests saw their motivation decrease significantly relative to the pupils who did not take any tests. They concluded that although examinations were a valuable tool for assessing the academic progress of pupils, they could decrease pupils' interest in the subjects they took. The stress faced by the pupils faced in this school might have been caused by sources other than the teachers. It could have also come from the pupils' parents, who wanted their children to do well on their examinations. In an ever-evolving economy where people are the only resource, parents in Singapore place a high emphasis on their children's education. In this study, they might have placed undue stress on their children to perform well in their foundational years from Primary 1 to Primary 4 so that when their children progressed to the advanced primary school years they would be able to cope well academically. They did so in the hope that their children would be able to do well on the national examinations at the end of Primary 6 and advance to an express stream and a good secondary school. Although the government has tried to deemphasise the importance of grades in education, especially at the primary level (Heng, 2015; Ong, 2015), the parents in this study did not share such sentiments. To them and most of the parents in Singapore, achieving good grades on the Primary School Leaving Examination is an important and major life event for a child (The Straits Times, 2015).

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In addition to experiencing the stress of doing well academically when progressing from Primary 3 to Primary 4, the pupils also had to become accustomed to the social environment of the new class in which they were placed. The school in which the study was carried out changed the classes of its pupils annually to socialise them with as many other pupils as possible. This practice of changing the classes of the pupils, which began at the Primary 1 level, could have caused some stress in the pupils. The need to socialise, the academic rigours and the need to join and perform well in co-curricular activities might have led the pupils to subvert the importance of their academic activities. This could have led to the decline in their integrated regulation as they progressed from Primary 3 to Primary 4.

Fatigue towards homework and schoolwork could have also played a role in the decline of the integrated regulation of both the boys and girls as they progressed from Primary 3 to Primary 4. This fatigue might have led to some form of amotivation during the period, as the pupils' self- and non-self-determined forms of extrinsic motivation declined. As academic work became more challenging as the pupils progressed to higher levels, the teachers could have given the pupils more schoolwork and homework. Some of the pupils' parents enrolled their children in enrichment courses held on weekends. These courses together with the increased amount of homework led to fatigue in the pupils. As a result, they might have exhibited amotivation in both their schoolwork and homework.

Furthermore, both the boys and girls could have engaged in maladaptive behaviour (Bembenutty & Karabenick, 2004; Bembenutty, 2011) in terms of their schoolwork and homework as they progressed from Primary 3 to Primary 4. This maladaptive behaviour lowered the pupils' self-regulation and self-efficacy, leading to a decline in their integrated regulation and all other self- and non-self-determined forms of extrinsic motivation. The types of maladaptive behaviour displayed by the pupils during this period are discussed later.

Many of the teachers at the school under examination complained about the failure of pupils to complete their homework and schoolwork and hand in their assigned tasks on time. The complaints were targeted more towards boys not handing in and completing their work on time. Although this issue is not examined here, it is suspected that both the boys and girls engaged in maladaptive behaviour towards their schoolwork and homework. Studies have found that pupils who are highly self-regulated have a different attitude towards their



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schoolwork and homework than pupils with low self-regulation. These pupils have high self-efficacy and believe they are competent and confident enough to complete all of the schoolwork and homework their teachers assign to them. This is not the case for pupils who have low self-regulation. However, pupils with low self-regulation and hence self-efficacy often engage in maladaptive behaviour when they approach their homework and schoolwork (Zimmerman, 1998, Bembenutty, 2011). In this study, the pupils' display of maladaptive behaviour towards schoolwork and homework might have accounted for their low self-determined and non-self-determined forms of regulation. According to Bembenutty (2011), there are a number of types of maladaptive homework behaviour that pupils adopt to protect themselves and avoid lending undesirable impressions to their teachers and parents.

One of these types of behaviour is self-handicapping behaviour. Pupils may want to engage in other activities that keep them from accomplishing important academic goals. This is known as self-handicapping behaviour (Urdan & Midgley, 2001, as cited in Bembenutty, 2011). Applying such behaviour to the context of this study, the pupils might have joined more than one co-curricular activity and sport at school and become heavily involved in it. These activities, held after school curriculum hours, took up most of the pupils' time during the day. When the pupils went home in the evening, they might have been too tired to even attempt to complete their homework. As a result, they might have resorted to handing in work of unacceptable quality and accepting the negative academic consequences.

Academic procrastination, or the act of delaying the completion of a task, homework or assignment that is under one's control, can and does weaken academic performance (Ackerman & Gross, 2005; Burka, 2008; Schraw, Wadkins, & Olafson, 2007, as cited in Bembenutty, 2011). It is an issue that affects many pupils, and past research has found that pupils who procrastinate have low self-esteem and attribute their procrastination to laziness and a lack of self-control (Burka & Yuen, as cited in Zarick & Stonebraker, 2009). Pupils may have the cognitive skills and intelligence to complete their assigned tasks and homework yet choose to put it off, complete it at the last minute or not do it at all. Such work may be of unacceptable quality, which may weaken academic performance. Zarick and Stonebraker (2009) identified several reasons for academic procrastination. One is the initial cost of starting a task. Pupils may not want to put in the extra effort to start their work. Another reason is task aversion, in which case pupils are unwilling to do the homework or schoolwork

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and hence delay taking action. Uncertainty and fear of failure are also issues that can cause procrastination. The fear of not knowing the difficulty level of the work or the amount of homework and schoolwork that will be assigned and the fear of not performing well on assigned work can also lead pupils to delay starting or completing their schoolwork and homework. The pupils involved in this study might not have wanted to put up the extra effort to start the work assigned to them, preferring to do other tasks or even play instead. Some of the pupils might have been afraid that the homework assigned to them was too difficult and beyond their capability. In addition, they might have harboured the fear that more work awaited them once they had completed a piece of assigned work.

The next maladaptive homework practice identified by Bembenutty (2011) is defensive pessimism. Pupils who engage in defensive pessimism set unrealistically low expectations of their work and experience high anxiety levels. When their homework or schoolwork turns out to be unsatisfactory, they are able to justify their performance. They also become involved in activities that may be irrelevant to their academic work or are less demanding and therefore protect them from the perceived threat to their self-worth (Covington, 1984, as cited in Bembenutty, 2011). Such maladaptive behaviour can lead to a decline in both self- and non-self-determined forms of extrinsic motivation among pupils. This is akin to amotivation, a condition under which pupils may not value homework and schoolwork or feel competent enough to do it. Furthermore, they may not believe that doing homework and schoolwork will yield the desired outcome of academic success (Seligman, 1975; Ryan, 1995; Deci, 1995, as cited in Ryan & Deci, 2000). The concept of defensive pessimism can be seen in some of the pupils involved in this study, who displayed an eagerness to help their teachers with classroom chores and yet failed to demonstrate their ability to complete their homework and schoolwork. Some of the pupils might have also volunteered for other school activities just to avoid doing the schoolwork assigned by their teachers. In addition, these activities might have taken up much of the pupils' after-school hours and caused them to go home late. The pupils might have then adopted the excuse that they did not have time to complete their assigned home. In their anxiety to avoid the negative consequences of not doing their homework, some of the pupils might have completed it but at a compromised quality. Furthermore, some of the pupils might not have even attempted to do the schoolwork and homework assigned by their teachers.

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Pupils who are self-regulated in their studies are good planners who set and achieve specific academic goals for themselves. Being highly self-efficacious, they are able to anticipate the problems they will face in achieving their academic goals and put in the effort and work required to solve these problems, making them problem-solving agents. They are also able to monitor their academic progress and attribute their performance failures to a lack of effort in their work (Bandura, 1997; Zimmerman, 2000; 1998a,b, as cited in Bembenutty & Karabenick, 2004). In the other continuum of being highly self-efficacious are learners who have low self-efficacy. These less-skilled learners engage in ineffective self-evaluations and self-monitoring of their academic progress. They attribute their academic failure to a lack of ability and engage in a faulty academic delay of gratification.

The term 'academic delay of gratification' refers to a pupil putting off the opportunity of receiving an immediate reward that would satisfy a desire in favour of pursuing academic goals that are temporally remote but evidently more valuable (Bembenutty & Karabenick, 2004). Applying this concept of academic delay of gratification to a primary school pupil, the pupil may put off playing computer or handheld electronic games and instead do homework and make revisions for upcoming tests to perform well academically. However, engagement in a faulty academic delay of gratification is maladaptive behaviour. In this case, pupils succumb to immediate gratification and put off homework or schoolwork that may be academically beneficial over the long term. An example of a pupil engaging in a faulty academic delay of gratification would be one who plays a computer or handheld electronic game instead of completing assigned homework or making revisions for an upcoming test. Pupils who engage in a faulty academic delay of gratification may fail to complete their assigned homework or even hand in homework of low quality. Some may even study for their tests at the last minute and consequently fail to do well. According to Bembenutty (2011), pupils who engage in a faulty academic delay of gratification are sensation seeking and impulsive, lack self-control, procrastinate and have a low motivation for learning. In this study, the pupils with low self-determined and non-self-determined forms of extrinsic motivation might have engaged in a faulty academic delay of gratification. They might have preferred to play computer and handheld electronic games upon arriving home after school or after their stays at pupil care centres instead of completing their assigned homework for the day or making revisions for an upcoming test, choosing instead to do so before they slept. This might have compromised the quality of work they handed in to

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their teachers the next day and caused them to perform poorly on their tests. Some pupils might not have even handed in their work. Although no formal studies have looked into the area of pupils handing in homework, the failure to hand in work was the main complaint of the teachers in the school under examination in the current study.

Another maladaptive homework and schoolwork practice pupils may adopt is misregulation. This refers to the failure of individuals to bring about desired outcomes through their attempts to control their actions, beliefs and behaviour (Sayette & Griffin, 2011, as cited in Bembenutty, 2011). Pupils who engage in misregulation do their homework or revise for their tests and examinations in locations that are not conducive to doing so. Pupils may do their homework while watching their favourite television programme. Some may attempt to 'multitask' by surfing the Internet while doing their homework, and others may engage in texting with their cell phones. Some pupils take many periodic timeouts with no knowledge of the time wasted and as result not have enough time to complete their homework. Pupils also take periodic timeouts in the classroom by repeatedly asking to use the washroom when doing schoolwork. These pupils may end up not having enough time to complete their schoolwork or rush to complete it and hand in work of poor quality as a result. Some pupils attempt to complete long homework assignments within a short period and then go on to engage in other activities, such as playing games on their cell phones or surfing the Internet. Pupils who engage in misregulation may fail to hand in their homework or schoolwork on time, and even when they manage to do so, their work may be of poor quality. Such maladaptive behaviour may be an effect of low non-self-regulated and self-regulated forms of extrinsic motivation on the part of the pupils.

Finally, pupils may engage in the maladaptive behaviour of underregulation in terms of their homework or schoolwork. The term 'underregulation' refers to an individual's inability to set or maintain standards, difficulties monitoring behaviour and failure or unwillingness to exercise self-control in the face of temptations and distractions (Sayette & Griffin, 2011, as cited in Bembenutty, 2011, p. 466). While doing their homework at home, pupils may be faced with the temptations of a television programme or a computer or cell phone game. The inability to exercise self-control over such temptations can result in the pupils' inability to complete his or her homework and hand it in on time. Some pupils may hand in poor quality work as a result of such temptations. These pupils may have low non-

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self-regulated and self-regulated forms of extrinsic motivation. Owing to their low non-self-regulated and self-regulated forms of extrinsic motivation, the pupils involved in this study might have engaged in this form of maladaptive behaviour. They might have done their homework while their parents were watching television programmes. These pupils might have been tempted to watch the programmes their parents were watching and hence engaged in underregulation behaviour when doing their homework. In addition, some of the pupils might have been tempted to play computer or cell phone games while making revisions for their tests and examinations. The temptation to play computer and cell phone games is even higher when the game is played on-line, where gamers can earn credits to buy virtual items to enhance their on-line characters by logging on frequently. Pupils who are unable to resist the temptation of such games may end up forgoing their homework and studying for their tests or examinations and play their games instead. This can result in the submission of poor quality work or even poor academic results.

It is merely speculative to attribute the stress, fatigue, amotivation, and maladaptive behaviour shown towards schoolwork and homework as reasons for the decline in the integrated motivation and other self- and non-self-determined forms of extrinsic motivation among the boys and girls considered in this study as they progressed from Primary 3 to Primary 4. Determining the actual reason for the decline during this period would require thorough interviews with the pupils. The level of amotivation in the pupils should also be measured so that the reason for the decline can be established more accurately.

The integrated regulation of the boys and girls when they progressed from Primary 4 to Primary 5 showed a slight increase. However, this increase should not be viewed in isolation from all of the other forms of regulation. Both the boys and girls started to show interest and became more self-determined in their work during this period, viewing it as important for their academic endeavours. The increase in integrated regulation should be examined together with the self- and non-self-determined forms of regulation. The girls' identified regulation declined along with all of their non-self-determined forms of extrinsic motivation during the period. However, the boys' identified regulation increased and their non-self-determined forms of extrinsic motivation declined.

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The increase in the boys' integrated regulation was also marked by a decline in their external and introjected regulation. However, there was a slight increase in their identified regulation. The decline in their non-self-determined forms of extrinsic motivation and increase in their self-determined forms of extrinsic motivation show that the boys did indeed have a lower reliance on external regulation to complete their schoolwork and homework. They also had a lower reliance on praise to improve their self-worth when handing in their work. They might have also believed that handing in their work allowed them to avoid unpleasant feelings of anxiety and guilt. They also exhibited an increased awareness of the importance of getting their schoolwork and homework done, and hence began to become more self-determined in completing their schoolwork and homework. However intrinsic this form of motivation was, it remained extrinsic (Ryan & Deci, 2000). The boys still required an externally regulated affect to complete or hand in their schoolwork and homework.

This increase in the boys' integrated regulation could not have come from within themselves alone. Both their self- and non-self-determined forms of extrinsic motivation were in decline when they progressed from Primary 3 to Primary 4. When they progressed from Primary 4 to Primary 5, their self-determined forms of extrinsic motivation (identified and integrated regulation) showed an upward moving trend. This could have led to an increase in the boys' integrated regulation.

One influence leading to the increase in the boys' integrated regulation could have come from their teachers, who at the Primary 4 level became more involved in their pupils' work. Deci and Ryan (2000) mentioned that as social creatures, individuals tend to function optimally when they experience caring and involved relationships. Some studies have found that adolescents' motivational development is optimised by the maintenance of relatedness from significant caregivers such as teachers, parents, and friends (Blatt & Blass, 1990; Opdenakker et al, 2012; Ryan & Lynch, 1989, as cited in Maulana, Opdenakker, Stroet, & Bosker, 2013). When teachers satisfy the need for relatedness and pupils feel connected to their teachers, the pupils tend to internalise and recognise the values and practices of the teachers as their own and accept them once they experience a sense of belonging (Niemic & Ryan, 2009, as cited in Maulana et al., 2013). This means that when the boys were able to experience the involvement and care from their teachers, they recognised the values and practices of their teachers, integrated them into their sense of self and practised them as their

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own. However, this does not mean that their teachers were uninvolved in their work as they progressed from Primary 3 to Primary 4. It may be that the teachers were more engaged in task- and syllabus-related activities, such as completing the syllabus on time, than in the pupils' experiences at school. The boys could have been too immature to realise that the teachers were involved in their experiences at school and instead viewed their teachers' involvement as a disciplinary form of management. As a result, the boys might have become disengaged in their schoolwork and homework, leading to a decrease in both their self- and non-self-determined forms of extrinsic motivation.

As the pupils were progressing from the foundational year of Primary 4 to the more academically rigorous year of Primary 5, the teachers heavily emphasised the importance of completing schoolwork and homework of good quality and handing it in on time. Sensing the involvement of their teachers and their ability to form a connection, the boys might have focused on this emphasis and realised the importance of completing their schoolwork and homework and handing in good quality work. As such, they became more self-determined in their schoolwork and homework. However, this does not mean that all of the boys felt connected to their teachers. Some of the boys might have felt connectedness and satisfaction out of their need for relatedness. However, due to peer influence and the experience of care from their friends (Deci & Ryan, 2000), the boys might have influenced one another into seeing the importance of their schoolwork and homework and hence became more self-determined in their work. Past research has shown that a supportive classroom and good teacher-pupil interpersonal relationships can lead to pupil self-efficacy, positive affect, achievement values, enjoyment and interest in school, engagement, and a task-goal orientation.

In addition, the quality of teachers' involvement in their pupils' work is very important. Good quality teacher involvement can promote pupils' sense of belonging, which is a strong predictor of their motivation (Anderman, 1999; Anderman & Anderman, 1999; Eccles & Migley, 1989; Davidson et al., 2010; Goodenow, 1993; Wentzel, 1999, Baumesiter & Leary, 1995, as cited in Maulana et al., 2013). Good quality teacher involvement in pupils' work creates a strong and frequent teacher-pupil interaction. This allows teachers to have a better understanding of their pupils and allows pupils to have a better sense of belonging to both their classroom and school. Strong teacher-pupil interaction is an

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important component in learning that extends beyond commitment on the part of the pupil. Such strong interactions between teachers and pupils can allow pupils to feel more at ease in the classroom, facilitating a good learning environment and contributing to pupil motivation (Velez, 2008; Cambell, 1998; Chickering & Gamson, 1987; Rodriguez et al., 1996, as cited in Estepp & Roberts, 2015). The increase in the boys' integrated motivation when they progressed from Primary 4 to Primary 5 could have been due to an increased teacher-pupil interaction that led to the teachers reaching a better understanding of the boys' characteristics. It could have also led to the boys reaching a better understanding of the needs and expectations of their teachers, which could have contributed to a better learning environment in class. This improved relationship could have increased the boys' self-determined extrinsic motivation and decreased their non-self-determined extrinsic motivation.

Teacher likeability also might have contributed to the upward trend in the boys' integrated regulation. Studies have found that the relationships children have with their teachers can affect their achievements in and satisfaction with school (Baker, 1990, as cited in Verkuyten & Thijs, 2002). A good relationship between a pupil and a teacher can lead to an increased sense of belonging in the school community (Osterman, 2000, as cited in Verkuyten & Thijs, 2002), which might have contributed to the upward trend in the integrated regulation of the boys in this study.

The increase in the boys' integrated regulation could have also been due to the boys' increased satisfaction with their school. Pupils' satisfaction with their school is an important aspect that can affect their psychological well-being, school engagement, rate of absenteeism, drop-out rate and behavioural problems (Ainley, 1991; Reyes & Jason, 1993, as cited in Verkuyten & Thijs, 2002). Pupils spend a lot of time in school, and their satisfaction with school is an important aspect in their academic endeavours. Studies have found that academic self-efficacy is related to school satisfaction (Huebner & McCullough, 2000, as cited in Verkuyten & Thijs, 2002). The pupils involved in this study spent at least six hours daily in school, tending to their curricular and extra-curricular activities. The satisfaction they had in their school activities and especially towards their curricula was an important aspect of their academic endeavours. Increased satisfaction with their curricular activities could have led to an upward trend in their integrated motivation. In their study of the



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satisfaction elementary schoolchildren had towards their schools and school contexts, Verkuyten and Thijs (2002) found that children's satisfaction with school was greater in classes that had more positive academic and social climates. In their progression from Primary 4 to Primary 5, the boys involved in this study might have found that their academic and social climates in the classroom were more positive than they were in Primary 3. These positive climates might have influenced the boys to develop an increased satisfaction with their schools and hence might have improved their self-determined forms of intrinsic motivation (identified and integrated regulation) while lowering their non-self-determined forms of extrinsic motivation (external and introjected regulation).

A conducive school and classroom environment and strong teacher interactions that encouraged school satisfaction could have led to the increase in the boys' integrated regulation as they progressed from Primary 4 to Primary 5. In addition to these social and academic climates, the parents of the boys might have played a role in increasing the boys' integrated regulation. The parents might have become more involved in their children's work. As the boys progressed from Primary 4 to Primary 5, they entered into a more academically rigorous period in their primary school years. The emphasis of primary school education switched from gaining a good foundation in the subjects they had studied over the previous four years to preparing to take a national examination at the end of Primary 6. The national examination, the Primary School Leaving Examination, determines the type of secondary school and stream a pupil will follow in his or her secondary education years. It is an examination that parents focus on, and it influences them to take a more hands-on approach towards their children's education. The parents of the boys in this study might have shown more interest in their children's school and homework, especially after parent-teacher meetings held at the end of the school year when the pupils were in Primary 4. At these meetings, the teachers advised the parents on the approach they should take to their children's education so as to ensure that the pupils would perform well on their Primary School Leaving Examinations at the end of Primary 6. With this advice from the teachers, the parents might have shown more interest and become more involved in their children's work. This parental involvement might have improved the pupils' secured-attachment relations with their parents and led to an increase in the boys' integrated regulation as a result. Studies have shown that stronger attachment relations with parents are associated with greater perceived competence in children. In addition, studies have shown that early adolescents exhibit greater

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attention/participation, decreased insecurity, and better results when they have secured attachment relations with their parents. Another study found that parent attachment was positively related to pupils' motivation to succeed academically (Learner & Kruger, 1997; Jacobsen & Hoffman, 1997, as cited in Wong, Wiest, & Cusick, 2002). In their study of the influence of pupils' perceptions of teacher autonomy support, parent attachment, competence, and self-worth on their motivation orientations and test performance achievements, Wong, Wiest, and Cusick (2002) found that pupils' attachment to their parents contributed to their motivation. Furthermore, they found that pupils with stronger parental attachments were more intrinsically motivated. Although these studies focused on adolescents, parental attachment was a factor in the current study of primary school pupils. Indeed, parental attachment could have influenced an improvement in the competency and motivation of the children in this study in terms of their schoolwork and homework. The boys in this study could have recognised their strong parental attachment when their parents took an active interest in their work as they matured. This could have decreased the boys' non-self-determined forms of extrinsic motivation (external and introjected regulation) and increased their self-determined forms of extrinsic motivation (identified and integrated motivation).

In addition, the influence of parents could have led to an upward movement in the boys' integrated regulation. Kim, Schallert, and Kim (2010) found that Korean pupils' adoption of personal goal orientations could be predicted by their perceptions of both their classrooms' goal structure and their parents' goal orientations. Other studies have also indicated a link between parenting styles and school performance, perceived academic competence, and perceived academic self-determination (Baumrind, 1991; DeBaryshe et al., 1993; Dornbush et al., 1987; Steinberg et al., 1989, 1992; Grolnick et al., 1991; Guay & Vallerand, 1994, as cited in Fortier, Vallerand, & Guay, 1995). Likewise, the parents of the boys involved in this study might have imposed upon them goal orientations that stressed the importance of studying and performing well in their examinations. As a result, these boys might have adopted the goal orientations of their parents and deemed their schoolwork and homework as important for their academic achievement. From there, they might have gained interest in their schoolwork and homework, leading to an increase in both their identified and integrated regulation. However, the volition of doing one's work in this case remains external, as it is done through the influence of an external party, leading to an increase in integrated regulation.

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The boys' increased satisfaction with their school, conducive classroom environment, and knowledge of the increased involvement of teachers and parents might have influenced the increase in their integrated regulation. However, these explanations are merely speculative. It is unknown whether this increase in the boys' integrated regulation was just a temporary blip or an upward trend that will continue as the boys progress beyond their primary school years. Determining the real reason for the increase in the boys' integrated regulation requires interviews and further study of their motivation and how it will progress in the future.

The boys' and girls' integrated regulation might have increased for different reasons. Although the girls' integrated regulation might have increased when they progressed from Primary 4 to Primary 5, their identified regulation decreased during this period. Such an increase in integrated regulation may mean that the girls experienced an increase in their self-determination towards their school and homework. However, this increase in self-determination does not imply that the girls deemed their schoolwork and homework as important. They might have done their schoolwork and homework and gained some interest in it, but this does not mean they considered such work as important. As such, the work they handed in might have been of a lower quality than that of the boys.

The boys' and girls' integrated regulation might have increased as they progressed from Primary 4 to Primary 5 for similar reasons. As the teaching styles of the teachers in the classroom did not differ between the boys and girls, the teachers also became increasingly involved in the girls' schoolwork and homework, which might have led the girls to be self-determined in terms of completing their work. The girls could have completed their work due to the knowledge that their teachers were watching over them, ensuring they did not fall behind in their studies. This does not mean that the teachers were not involved in their work when the girls were progressing from Primary 3 to Primary 4. As in the case of the boys, the girls' teachers might have been more involved in task-related activities such as teaching the syllabus on time. The increased involvement of the teachers in the girls' schoolwork and homework does not infer that the girls deemed the work as important for their academic endeavours. The girls could have done their work and shown interest in it because their

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teachers were watching over them. This may explain why their integrated regulation showed an upward trend yet their identified regulation decreased.

The girls' teachers might have increased their likeability by becoming more involved in their pupils' work. Like the boys, the feelings the girls had towards their teachers might have increased their interest in the subjects they were taking and hence their studies overall. However, this increased interest in their studies did not amount to an increase in their self-determined behaviour towards their schoolwork and homework. The girls' identified regulation decreased during the period. This implies that the girls took an interest in their studies because they liked their teachers. However, they did not consider their homework and schoolwork as important aspects in their studies.

The girls' parents might have also exerted influence over their children by expecting them to adopt their goal orientations. The girls might have found that the increased involvement and goal orientations of their parents increased their self-determined behaviour towards their schoolwork and homework. This means that with increased parental monitoring, the girls might have become more autonomous in doing and completing their schoolwork and homework. However, as demonstrated by the decline in their identified regulation, this does not mean that the girls considered completing their schoolwork and homework as important aspects in their studies. The girls might have handed in completed schoolwork and homework of low quality, similar to how they viewed and completed their work when progressing from Primary 3 to Primary 4.

In addition to teacher and parental involvement potentially increasing the girls' integrated regulation, the psychological environment of the classroom might have had an influence. Studies have suggested that the psychological environment of the classroom has a strong influence on the goals pupils adopt (Ames & Archer, 1988; Ames & Maehr, 1989; Anderman & Young, 1993, as cited in Anderman & Maehr, 1994). The girls might have noticed the boys taking an increased interest in their schoolwork and homework. As such, they might have been influenced by the boys to take a more self-determined approach towards their work. This may explain why the girls' integrated regulation increased as they progressed from Primary 4 to Primary 5. However, as suggested by the decline in their identified regulation, this increase in integrated regulation does not imply that the girls

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deemed their schoolwork and homework as important aspects in their studies. They might have taken an interest in their schoolwork and homework merely because everyone else in the classroom had done so.

The increased involvement of teachers, teacher likeability, satisfaction with school and influence of friends might have increased the girls' integrated regulation as they progressed from Primary 4 to Primary 5. However, these explanations for the increase are merely speculative. The actual reasons for the increase can only be determined through interviews with the girls. Furthermore, it is unknown whether the increase was only temporary or will continue throughout the girls' primary school years. The direction of the shift in the girls' integrated regulation will only be known if the movement of their integrated regulation is continually tracked after they take their Primary School Leaving Examination and progress past Primary 6.

Looking at the shift in both the boys' and girls' self- and non-self-determined forms of extrinsic motivation, the levels of most of the forms of regulation were lower in Primary 5 than in Primary 3. Only the boys' identified regulation at the Primary 5 level was higher than at the Primary 3 level. Although the boys' identified regulation increased slightly when they progressed from Primary 4 to Primary 5, this increase was statistically insignificant. This decrease in most of the forms of extrinsic motivation implies that both the boys and girls experienced some form of amotivation in their academic work after the Primary 3 level.

The decline in the pupils' overall motivation as they progressed through their primary school years could have been caused by the increasingly challenging academic rigours they faced. As the pupils progressed to a more advanced academic level from Primary 4 to Primary 5, they faced more schoolwork and homework that became more challenging. When they were unable to manage these challenges well, they might have developed a sense of inferiority. In terms of their psychosocial development, pupils go through a stage Erikson called 'industry vs. inferiority' from ages 6 to 12, at which time they are enrolled in primary school (Primary 1 to Primary 6 in Singapore's school context). Successful efforts in academic and social competency during this period can lead to industry, and failure can lead to feelings of inferiority (Zimbardo et al., 2014). In this study, feelings of inferiority could

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have led the pupils to experience a decline in their level of motivation as they progressed into Primary 5.

Furthermore, the way the teachers and perhaps parents framed their messages to the pupils to encourage them to do better academically could have affected the pupils' motivations. Both the teachers and parents could have appealed to the pupils' fears to communicate the consequences of failing examinations or not doing well. Fear appeals are commonly used in health settings where it is assumed that if people are fearful that a particular habit is hurting their health, they will change their behaviour to mitigate that fear (Taylor, 2012). Likewise, in educational settings, teachers and parents may use fear appeals to warn pupils of the consequences of failing their examinations or not doing well. In this study, the teachers and parents might have told the pupils that if they failed or performed poorly on their examinations, they would get into secondary schools with poor academic and behavioural settings. These fear appeals might have even been extended to telling the pupils they would be unable to take advantage of good career opportunities when they grew up. Messages of negative consequences are typically intended to motivate pupils to engage in their studies and prepare for their examinations (Putwain, 2009; Putwain & Roberts, 2012, as cited in Putwain & Remedios, 2014).

However, such fear appeals may not influence pupils to become more engaged in their studies. Putwain and Remedios (2014) found that when teachers made more frequent fear appeals that appeared threatening, pupils experienced lower intrinsic and identified types of self-determined motivation. Although the pupils in the study reported experiencing greater amotivation, their external and introjected regulation was not really affected. Although the study by Putwain and Remedios (2014) involved secondary school pupils, the usage of fear appeals by both teachers and parents may also affect primary school pupils. Such fear appeals may even affect both the self- and non-self-determined forms of extrinsic motivation of primary school children, who are more immature and younger. The pupils involved in this study were not strangers to the fear appeals used on them by both their teachers and parents. This was especially so when the pupils were in Primary 5, when teachers would warn them about the consequences of not putting effort into their schoolwork and homework. The pupils were told frequently that they would not perform well on their Primary School Leaving Examinations in Primary 6 if they did not work hard at Primary 5, and that failing to

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do so would result in their progression into academically and behaviourally challenged secondary schools. The usage of such fear appeals might have caused most of the pupils' self- and non-self-determined forms of extrinsic motivation to decline. However, the boys' overall identified regulation did not decline. Instead, it increased slightly, although not to a statistically significant degree. The reasons for this are unknown, and more detailed studies are required to determine them.

### 6.3 Theoretical Implications

The findings of the study suggest that a person's self- and non-self-determined forms of regulation shift due to complexities and the intrinsically interesting properties of the task he or she undertakes. In their discussion of organismic integration theory, a sub-theory of self-determination theory, Deci and Ryan (2000) stated that in the continuum of extrinsic motivation, there is no sequence to which one's regulatory style shifts. However, the exposure to and experience of the intrinsically interesting properties of a task can lead to an orientation shift in a person's regulation. The shift in regulation needs not be a progression from more externally regulated behaviour to more intrinsically motivated behaviour. It could move 'backwards' if the person loses the sense of value of that particular activity. Likewise, the results of this study revealed that as pupils progressed from Primary 3 to Primary 4, their self-determined forms of extrinsic motivation (identified and integrated regulation) shifted 'backwards'. However, this does not mean that their non-self-determined forms of extrinsic motivation (external and introjected regulations) increased, i.e., that the pupils became more externally regulated. On the contrary, the pupils' non-self-determined forms of regulations also shifted 'backwards' overall, and both their external and introjected regulation decreased. This may point to some form of amotivation among the pupils in their schoolwork and homework as they progressed from Primary 3 to Primary 4.

Furthermore, organismic integration theory posits that one needs not progress through each stage of internalisation along the continuum of extrinsic motivation in relation to a particular regulation. It is possible to adopt an initial regulation along the continuum depending on one's prior experiences and situational factors (Ryan, 1995, as cited in Ryan & Deci, 2000). This means that a person can, with favourable initial exposure and experience of a task, engage in introjection or even identification behaviour. The orientation shift in regulation then depends on future exposure of the task, and it appears that a person's general regulatory style becomes more 'internal' over time on average (Chandler & Connell, 1987, as cited in Ryan & Deci, 2000, p. 63). The study found that although both the self- and non-self-determined forms of regulation decreased as the pupils progressed from Primary 3 to Primary 4, their self-determined forms of regulation increased as they progressed from Primary 4 to Primary 5. This implies that the pupils' regulatory styles became more



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‘internal’ over time, a finding in agreement with the general organismic tendencies towards autonomy and self-regulation (Ryan, 1995, as cited in Deci & Ryan, 2000, p. 63).

The results of the study differ from the tenet of organismic integration theory that one starts off with a regulation that shifts according to the person's experience with the task (Deci & Ryan, 2000). The results show that one can have high non-self-determined forms of extrinsic motivation (external and introjected regulation) and also have high self-determined forms of extrinsic motivation (identified and integrated regulation), although the level of the self-determined forms may be a little lower than that of the non-self-determined forms. These high levels of both self- and non-self-determined forms of extrinsic motivation were reflected at the start of the study, when the pupils had just started Primary 3. It may be the case that the pupils, who had required external prompting since they were in Primary 2, felt valued by and connected to their teachers and hence were able to internalise the importance of completing their schoolwork and homework. However, such a connectedness with the teachers could have declined when the pupils progressed from Primary 3 to Primary 4, resulting in the decline in all self- and non-self-determined forms of extrinsic motivation.

According to self-determination theory, the internalisation of a regulation may only be introjected, which may leave people feeling satisfied with their needs for competency and relatedness. However, this introjected regulation does not leave people feeling self-determined, and it is only through the facilitation of internalisation through autonomy support that people are enabled to experience feelings of self-determination. Hence, for a regulation to be internalised, it is important for it to be integrated rather than introjected (Deci & Ryan, 2000). Pupils who do their schoolwork and homework may do so only to satisfy their needs for competency, pride, and self-worth or to avoid feelings of guilt. Such introjected regulations do not leave them feeling self-determined in their schoolwork and homework. It is only through the facilitation of autonomy support, competency, and relatedness from their teachers and parents that pupils internalise and integrate their goals in the academic setting and become self-determined in their schoolwork and homework. This issue is discussed further in the practical implications section of this study.

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### 6.4 Practical Implications

The results of the study showed that the pupils' self- and non-self-determined forms of extrinsic motivation declined when they progressed from Primary 3 to Primary 5. However, they also demonstrated that the pupils started off with relatively high self- and non-self-determined forms of motivation. This raises the question of how teachers at school and parents at home can retain this level of motivation in pupils or even improve pupils' self-determined forms of extrinsic motivation as they progress through their primary school years and beyond.

One way to retain or improve pupils' motivation levels is to make rewards more proximal to the pupils. When a school practices the habit of giving rewards to pupils as a means of encouragement, it should make the rewards proximal to the pupils. Marinak and Gambrell (2008) found that rewards that were proximal to pupils helped to motivate them more than rewards the pupils considered distal. Deci and Ryan (2000) stated that a person may originally become exposed to an activity due to the rewards the activity offers, and a shift in regulation towards the activity may result when the person does not perceive the reward as overly controlling. Likewise, when the pupils do not perceive the reward (external regulation) offered to them as overly controlling, they experience a shift towards a more self-determined form of extrinsic motivation in their schoolwork and homework. Hence, it is important for teachers to plan and give out their rewards carefully in such a way that the rewards lead to a shift in the pupils' motivational orientation towards a self-determined form of regulation. Reward administration applies to not only schools and their teachers, but also the manner in which parents give out rewards.

Next, as stress may result in a decline in both self- and non-self-determined forms of motivation, both teachers and parents must take note of the stress levels of pupils. This is especially so when examinations and tests are near. Teachers must ensure that they do not give too much homework to their pupils. At the same time, schoolwork must be given at a pace that allows pupils to cope with it. Parents must also play a role in helping pupils manage their stress well. If pupils become stressed over their schoolwork and homework, it is recommended that the school's counselling services be sought.

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The schoolwork and homework assigned by teachers must match the ability of their pupils. This ensures that pupils are able to cope with the completion of their schoolwork and homework autonomously. The ability to complete schoolwork and homework autonomously can help pupils to develop a sense of self-efficacy, which can lead them to develop a sense of industry as they progress through their psychosocial development. The completion of homework has been associated with reports of high self-efficacy beliefs and the usage of self-regulatory processes, with high self-efficacy playing an important role in academic achievement. Studies have also found that academic self-efficacy beliefs are positively related to homework completion (Bembenutty & Zimmerman, 2003; Kitsantas & Zimmerman, 2009; Pintrich & De Groot, 1990, as cited in Kitsantas, Cheema, & Ware, 2011). However, homework or schoolwork that is too challenging may result in pupils developing a low sense of self-efficacy, which can lead to feelings of inferiority and a decline in both their self- and non-self-determined forms of motivation towards schoolwork and homework. As classes comprise pupils of different abilities, this means that teachers must assign differentiated worksheets of varying levels of difficulty to their pupils. This ensures that pupils who are academically weaker are able to handle their work autonomously and develop feelings of self-efficacy, and that pupils who are academically stronger are able to find their work challenging and yet of a level that can develop them further.

In addition, the homework assigned by teachers must be meaningful. Studies by Alleman et al. (2010, as cited in Bembenutty, 2011) found that pupils were more autonomous when it came to homework completion when teachers designed meaningful homework. The authors highlighted seven principles of meaningful homework. The first principle is to provide homework that expands the meaningfulness and life application of school learning, which involves connecting homework to the out-of-school environment. The next principle is to construct meaning in natural ways and expand the pupils' sense of self-efficacy, which includes challenging them to use critical thinking to apply the material they are learning in the classroom to real-world situations. The third principle is to extend education to the home and community by engaging adults in interesting and responsible ways. This principle involves parents getting involved in their children's work. Teachers can assign homework that requires parents' assistance to complete. The fourth principle is to take advantage of the pupils' diversity by using it as a learning resource. As a classroom comprises pupils from various races and communities, this principle involves teachers administering homework that

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requires the pupils to know each other, their families, and their communities. Such homework serves to enhance the pupil learning experience. The fifth principle involves personalising the curriculum and allowing pupils to explore their current social, familial, and communal circumstances to help them reflect on the links between the curriculum and their personal situations. The sixth principle states that pupils should be given meaningful homework that encourages them to explore their community and gather data from it. The final principle states that the materials used to supplement textbooks must be kept up-to-date to allow pupils to learn about the contemporary information surrounding them.

Beyond assigning schoolwork and homework that match the abilities of their pupils, teachers should not assign an overwhelming amount of homework. Pupils spend a large amount of time in school, and homework should be assigned in appropriate amounts that allow the pupils to complete it effectively at home or at pupil care centres. This means that teachers of various subjects must coordinate the amount of homework they assign to their pupils per day.

In addition to administering schoolwork and homework that help to improve pupils' self-determined forms of extrinsic motivation, the classroom social environment must be made conducive and safe for the pupils to explore. The ability of pupils to explore and fail in a safe social environment may help to improve their self-determined forms of extrinsic motivation. This means having teachers who are supportive and classmates with whom the pupils can confidently interact. In a school context such as that considered in this study, this means having pupils progress in the same class as much as possible throughout the primary levels. Ryan and Patrick (2001) found that pupils engaged in more self-regulating learning and less off-task and disruptive behaviour when they had teachers whom they perceived as supportive, understanding, and available to help. Furthermore, pupils' efficacy for communicating and getting along with their teachers increased. Patrick, Ryan, and Kaplan (2007) found that when pupils felt a sense of emotional support from their teachers, academic support from their peers and encouragement from their teachers to discuss their work, they were more likely to adopt self-regulatory strategies and engage in task-related interaction. Hence, it is important for teachers to support and facilitate a classroom social environment in which pupils feel free to explore and communicate with their teachers and one another so as to keep them motivated in their studies.

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The importance of the role the teacher plays in facilitating a conducive classroom environment also means that teachers must be aware of how they interact with their pupils. Although teachers may be keen to motivate their pupils to put more effort into their work, they must be aware that using fear appeals may not be an effective way to improve their pupils' motivation. Teachers should reflect on the way they communicate with their pupils and perhaps have their peers or the school counsellor observe their lessons and give feedback on how their messages are affecting their pupils. Teachers should also plan the type of messages they want to give their pupils and how they can effectively incorporate these messages into their lessons. From there, teachers may want to consider peer sharing to determine how they bring messages across to their pupils and the success of such messages.

To counter the issue of pupils engaging in maladaptive behaviour in terms of their homework and schoolwork, teachers can adopt a few strategies to help their pupils further increase their self-determined forms of extrinsic motivation. First, teachers can teach their pupils about establishing goals to complete their homework by setting up homework logs to monitor their daily homework completion. This would include teaching pupils how to engage in self-monitoring behaviour. At the same time, teachers should teach their pupils to set realistic goals in completing their homework. This would allow pupils to have a sense of self-efficacy in their ability to complete their homework on time. In addition, teachers should help their pupils understand that it is unhelpful and a waste of their limited resources and energy for pupils to invest in strategies for the sake of instant gratification.

Teachers can instil the values and incentives for completing their homework on time in pupils who tend to procrastinate. At the same time, these pupils can be taught time management skills and how to complete their homework efficiently. Such skills can improve the pupils' self-efficacy and hence their motivation. Next, teachers can help their pupils to enjoy homework and schoolwork as tasks in themselves rather than seek rewards upon completion. This would involve teachers applying the seven principles of meaningful homework established by Alleman et al. (2010).

In addition to having teachers play a role in improving pupils' self-determined forms of motivation, parents should be involved in motivating their children. First, they must be

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mindful of the message they bring across to their children. This means refraining from using fear appeals that may affect their children's motivation. Parents can learn how to communicate effectively with their children through talks given by school counsellors and teachers.

Parents should also learn how to effectively support their children's education without being overly controlling and overstepping their children's freedom and responsibilities. This means learning how to help their children to become self-reliant and self-regulated learners. At the same time, teachers can help parents by teaching pupils to develop self-confidence in their work and become autonomous and self-regulated learners. Teachers should also teach pupils about the boundaries involved in obtaining support from their parents. This means teaching the children to know when they should ask their parents for help with their homework and when they should do their homework on their own.

As pupils spend large amounts of their time at school on academic activities, pupils who go to pupil care centres after school should engage in purposeful activities at such centres to ensure they do not become overly stressed by their academic activities. As such, pupils who go to pupil care centres after school hours should not be given more academic work. Instead, they should be allowed to complete their work and become involved in social activities such as group games. Pupil care centres must employ qualified staff to encourage these pupils to be self-regulated in the completion of their homework and enjoy homework as a task in itself. Likewise, these supervisors must teach pupils to develop self-confidence in their work so as to allow them to become self-regulated learners. It is also important for teachers and supervisors of pupil care centres to cooperate with parents in encouraging pupils to become self-regulated learners. This ensures that the efforts of the teachers in motivating the pupils do not go to waste and that the skills the pupils use to complete their homework and schoolwork are not confined to school. Instead, pupils should continue to maintain these skills throughout their school years, in pupil care centres, at home and hopefully throughout their academic endeavours. It is hoped that by learning these skills, pupils' non-self-determined forms of extrinsic motivation will decrease and their self-determined forms of extrinsic motivation will increase further.

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### 6.5 Strengths and Limitations

One of the strengths of this study into the shift in pupils' motivation as they progress through their primary school years is that this is the first time in Singapore, that a study into the degree to which non-self-determined and self-determined forms of extrinsic motivation of pupils have shifted, is being carried out. Besides being the first of such study, this is also the first time in Singapore that a longitudinal study into such shifts in the non-self-determined and self-determined forms of extrinsic motivation is being carried out. This longitudinal study, conducted over three years, has allowed a rich amount of data to be collected. The data gained from this study can enable educators to establish teaching strategies to improve the intrinsic motivation of pupils as they progress along their primary school years. Besides that, policy makers at a macro level can use the data to explore into how Singapore education policies can be tuned to promote a more self-determined form of extrinsic motivation among the pupils at the primary level. It is hoped that the tuning of policies to include the promotion of a more self-determined form of extrinsic motivation can influence children to become more interested towards their studies and become life-long learners as they grow up into adults. An education policy that promotes a more self-determined form of extrinsic motivation would be line with the education policy of Thinking Schools Learning Nation.

This study of the shift in pupils' motivation as they progress through their primary school years is not without limitations. One such limitation is the small number of participants. Given the number of primary schools in Singapore, a measurement of one cohort of 179 pupils does not provide a good representation of how the motivation of pupils across the country shift as they progress from Primary 3 to Primary 5. There are 190 primary schools in Singapore, and each school has about 1,400 pupils enrolled in Primary 1 to Primary 6. With just 179 pupils involved in this study, its results may only be generalisable to the school under examination.

Furthermore, these 190 schools are spread across 27 districts or areas in Singapore. Each of these districts has its own distinctive characteristics, culture and social economic status. The pupils at each of the schools in these districts are distinctively different across these three aspects. Due to their different social backgrounds, pupils have different values when it comes to their academic achievement. As a result, their study motivations may

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differ. Although every school in Singapore practises similar core values, each school has different academic emphases and niche programmes (MOE, 2016). Some schools focus on academic achievement, and others choose to focus on co-curricular niche programmes. The school in which this study was carried out focused very much on academic programmes, although the pupils were not strong academically. Hence, the results of this study cannot be generalised to all of the pupils in Singapore.

The next limitation of this study is that it investigated only the shifts in both self- and non-self-determined forms of extrinsic motivation as the pupils progressed from Primary 3 to Primary 5. It did not investigate why the pupils' motivations shifted as they progressed through their primary school years. An investigation of the many reasons why each of the regulations in the self- and non-self-determined forms of extrinsic motivation shifted may provide a more in-depth explanation of why the pupils' motivations shifted as they progressed through their primary school years.

The third limitation of the study is that it did not investigate the shift in the pupils' motivations as they progressed into Primary 6. The pupils will need to take the national Primary School Leaving Examination towards the end of Primary 6. The stress associated with taking this national examination might have affected the pupils' self- and non-self-determined forms of extrinsic motivation. Although at the end of Primary 5 most of the pupils showed an increasing trend in their self-determined forms of regulations and all of them showed a declining trend in their non-self-determined forms of motivation, it is unknown whether such trends will persist, especially in the face of a national examination, which comprises a major life event for pupils. Knowledge of the motivations of the pupils at the end of Primary 6 may shed light on how the trends in their various types of regulation will shift in their secondary school years.

The fourth limitation of the study is that it did not measure the amotivation levels of the pupils. Given that the results reveal a decline in most of the self- and non-self-determined forms of extrinsic motivation as the pupils progressed from Primary 3 to Primary 5, the pupils could have experienced some form of amotivation. The study should have investigated the amotivation of the pupils as they progressed from Primary 3 to Primary 5. From there, it would have been able to investigate the relationship between amotivation and



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the decline in the pupils' self- and non-self-determined forms of extrinsic motivation. However, given the number of items in the questionnaire used this study, it was difficult to include items that measured amotivation in the pupils. Given the age of the pupils when the study started, they might not have been able to concentrate and give accurate answers if the questionnaire had contained too many items. The time in which the study could be carried out with the pupils involved also presented an imposition. The school principal granted only 30 minutes for the questionnaire to be administered to a class. The pupils took exactly 30 minutes to complete the questionnaire given to them. The pupils might not have been able to complete a longer questionnaire, and given the imposition of the tight time limit it might have been impossible to conduct the study under such circumstances.

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### 6.6 Suggestions for Future Research

Based on the limitations of the study, future research should investigate the motivation levels of the pupils at more primary schools instead of focusing on only one school. Future researchers may choose to focus on three schools per district or area in Singapore to conduct a longitudinal study of how pupils' self- and non-self-determined forms of extrinsic motivation can shift as they progress through their primary school years. The number of schools involved should provide a good indication of the diversification of the cultures, characteristics, and social economic statuses of all of the schools in Singapore. The results of a study focusing on that many schools could definitely be generalised across all of the schools in Singapore.

Future researchers may also look into conducting a qualitative study of why pupils' motivations shift as they progress through their primary school years. Beyond identifying such a shift, a qualitative study can explore the reasons behind it. With this knowledge, educators can take pre-emptive actions to either sustain pupils' self-determined forms of extrinsic motivation or even increase them further so as to allow the pupils to become more self-regulated in their schoolwork and homework.

Future researchers may also consider measuring the presence of a shift in pupils' amotivation levels. This would allow educators to know whether the shift in pupils' motivation is correlated with the shift in the pupils' amotivation. It would also allow educators to take action to lower pupils' amotivation and increase their self-determined forms of extrinsic motivation.

Finally, future researchers may consider exploring the shift in pupils' motivation as they progress from Primary 3 to Primary 6 instead of stopping at Primary 5. Doing so may allow a better understanding of how pupils feel about their studies, especially when faced with a national examination. It may also allow for a better understanding and prediction of how pupils' motivations shift as they progress into their secondary school years. With this knowledge, educators can take actions to ensure that their pupils become lifelong self-regulated learners.

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### 6.7 Conclusion

This study traces the history of the primary education system of post-independence Singapore from its beginnings until today. In doing so, it analyses the lack of research into the motivation of pupils as they progress through their primary school years. Using self-determination theory as its theoretical background, it investigates how pupils' motivations have shifted as they progress through their primary school years. It explores self-determination theory in detail and analyses various literature reviews, all of which point to a lack of relevant investigation.

A longitudinal study of this shift was conducted. The results are presented along with a detailed discussion of the reasons for the shift. The discussion also examines how self-determination theory informs the results and how the results portray the educational circumstances of the school under examination. The limitations of the study are explored, and recommendations are made as to how future research can be carried out to better inform educators of how and why pupils' motivations shift as they progress through their primary school years.

In conclusion, this thesis seeks to review the research questions that led to the formation of the hypothesis that students' motivation levels shift as they progress through their primary school years. The first research question is: What is the motivation level of students at Primary 3 (Year 3)? The answer to this question is that the students scored high in all non-self-determined and self-determined forms of extrinsic motivation. The score of the identified regulation of the students was the highest. This is followed by the scores of their external regulation. Following that would be scores of their introjected and integrated regulations of which both regulations had the same scores. The next research question is: Do students' motivation levels shift at Primary 4 (Year 4)? The answer to this question is yes, the motivation of the students shifted as they progressed to Primary 4. On the whole, there was a decrease in the level non-self-determined and self-determined forms of extrinsic motivation though this decrease was very slight. Finally, the third question is: Do students' motivation levels shift at Primary 5 (Year 5)? The answer to this question is that not all forms of non-

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self-determined and self-determined forms of extrinsic motivation shifted. While the external regulation, introjected regulation and integrated regulation of the pupils decreased slightly, their identified regulation remained unchanged.

It is hoped that this thesis can better inform educators as to how pupils' motivations can shift in their primary school years and identify actions that educators can take to sustain or increase pupils' self-determined forms of extrinsic motivation and decrease their non-self-determined forms of extrinsic motivation.

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Appendix

Appendix A: Academic Self-Regulation Questionnaire (SRQ-A)



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**WHY I DO THINGS**

Name: \_\_\_\_\_ Age: \_\_\_\_\_

Class: \_\_\_\_\_ Boy or Girl (Circle) Teacher: \_\_\_\_\_

I have been read to, the instructions on how to complete the survey. I have understood the instructions and I agree to complete this survey. I know that I can leave this survey halfway if I do not feel good about answering the questions.

☐

**Please tick**

**Sign:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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A. Why do I do my homework?

1. Because I want the teacher to think I'm a good student.

Very true      Sort of true      Not very true      Not at all true

2. Because I'll get in trouble if I don't.

Very true      Sort of true      Not very true      Not at all true

3. Because it's fun.

Very true      Sort of true      Not very true      Not at all true

4. Because I will feel bad about myself if I don't do it.

Very true      Sort of true      Not very true      Not at all true

5. Because I want to understand the subject.

Very true      Sort of true      Not very true      Not at all true

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6. Because that's what I'm supposed to do.

Very true      Sort of true      Not very true      Not at all true

7. Because I enjoy doing my homework.

Very true      Sort of true      Not very true      Not at all true

8. Because it's important to me to do my homework.

Very true      Sort of true      Not very true      Not at all true

B. Why do I work on my classwork?

9. So that the teacher won't yell at me.

Very true      Sort of true      Not very true      Not at all true

10. Because I want the teacher to think I'm a good student.

Very true      Sort of true      Not very true      Not at all true

11. Because I want to learn new things.

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Very true      Sort of true      Not very true      Not at all true

12.      Because I'll be ashamed of myself if it didn't get done.

Very true      Sort of true      Not very true      Not at all true

13.      Because it's fun.

Very true      Sort of true      Not very true      Not at all true

14.      Because that's the rule.

Very true      Sort of true      Not very true      Not at all true

15.      Because I enjoy doing my classwork.

Very true      Sort of true      Not very true      Not at all true

16.      Because it's important to me to work on my classwork.

Very true      Sort of true      Not very true      Not at all true

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C. Why do I try to answer hard questions in class?

17. Because I want the other students to think I'm smart.

Very true      Sort of true      Not very true      Not at all true

18. Because I feel ashamed of myself when I don't try.

Very true      Sort of true      Not very true      Not at all true

19. Because I enjoy answering hard questions.

Very true      Sort of true      Not very true      Not at all true

20. Because that's what I'm supposed to do.

Very true      Sort of true      Not very true      Not at all true

21. To find out if I'm right or wrong.

Very true      Sort of true      Not very true      Not at all true

22. Because it's fun to answer hard questions.

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Very true      Sort of true      Not very true      Not at all true

23.      Because it's important to me to try to answer hard questions in class.

Very true      Sort of true      Not very true      Not at all true

24.      Because I want the teacher to say nice things about me.

Very true      Sort of true      Not very true      Not at all true

D. Why do I try to do well in school?

25.      Because that's what I'm supposed to do.

Very true      Sort of true      Not very true      Not at all true

26.      So my teachers will think I'm a good student

Very true      Sort of true      Not very true      Not at all true

27.      Because I enjoy doing my school work well.

Very true      Sort of true      Not very true      Not at all true

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28. Because I will get in trouble if I don't do well.

Very true      Sort of true      Not very true      Not at all true

29. Because I'll feel really bad about myself if I don't do well.

Very true      Sort of true      Not very true      Not at all true

30. Because it's important to me to try to do well in school.

Very true      Sort of true      Not very true      Not at all true

31. Because I will feel really proud of myself if I do well.

Very true      Sort of true      Not very true      Not at all true

32. Because I might get a reward if I do well.

Very true      Sort of true      Not very true      Not at all true

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Appendix B

**Durham University**

**School of Education**

**Research Ethics and Data Protection Monitoring Form**

Research involving humans by all academic and related Staff and Students in the Department is subject to the standards set out in the Department Code of Practice on Research Ethics. The Sub-Committee will assess the research against the British Educational Research Association's *Revised Ethical Guidelines for Educational Research* (2004).

It is a requirement that prior to the commencement of all research that this form be completed and submitted to the Department's Research Ethics and Data Protection Sub-Committee. The Committee will be responsible for issuing certification that the research meets acceptable ethical standards and will, if necessary, require changes to the research methodology or reporting strategy.

A copy of the research proposal which details methods and reporting strategies must be attached and should be no longer than two typed A4 pages. In addition you should also attach any information and consent form (written in layperson's language) you plan to use. An example of a consent form is included at the end of the code of practice.

Please send the signed application form and proposal to the Secretary of the Ethics Advisory Committee (Sheena Smith, School of Education, tel. (0191) 334 8403, e-mail: [Sheena.Smith@Durham.ac.uk](mailto:Sheena.Smith@Durham.ac.uk)). Returned applications must be either typed or word-processed and it would assist members if you could forward your form, once signed, to the Secretary as an e-mail attachment

Name: Goh Boon Yeow

Course: Doctorate in Education

Contact e-mail address: gohbyeow@google.com

Supervisor: Dr. Richard Remedios



It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal  
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Title of research project: **It's Not Just About Rewards, I Am Also Interested In My Studies – The Effects of External Regulation on Interest In School Work**

**Questionnaire**

		YES	NO	
1.	Does your research involve living human subjects?	✓		IF NOT, GO TO DECLARATION AT END
2.	Does your research involve only the analysis of large, secondary and anonymised datasets?		✓	IF YES, GO TO DECLARATION AT END
3a	Will you give your informants a written summary of your research and its uses?		✓	If NO, please provide further details and go to 3b
3b	Will you give your informants a verbal summary of your research and its uses?		✓	If NO, please provide further details  The school (the principal and teachers) will get a summary of the research finding annually till the end of the project
3c	Will you ask your informants to sign a consent form?	✓		If NO, please provide further details
4.	Does your research involve covert surveillance (for example, participant observation)?		✓	If YES, please provide further details.
5a	Will your information <i>automatically</i> be anonymised in your research?		✓	If NO, please provide further details and go to 5b

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5b	IF NO  Will you explicitly give <i>all</i> your informants the right to remain anonymous?		√	If NO, why not?  The names of the informants will be written on the survey form. However their names will not be reflected in the final report. This is to allow the research to pick out students to do a qualitative design interview if the need arises – pending approval of another ethical committee application and also approval from supervisor.
6.	Will monitoring devices be used openly and only with the permission of informants?		√	If NO, why not? No monitoring devices will be used.
7.	Will your informants be provided with a summary of your research findings?		√	If NO, why not?  They are children and may not understand the findings. The teachers and the school principal will be given the research findings
8.	Will your research be available to informants and the general public without authorities restrictions placed by sponsoring authorities?		√	If NO, please provide further details. This is a purely school research and result is only to be made available to the school.
9.	Have you considered the implications of your research intervention on your informants?	√		Please provide full details.  Because there is no intervention, and therefore a control group, there seems to be no ethical dilemma from one group obtaining an advantage that is withheld from another group.
10.	Are there any other ethical issues arising from your research?		√	If YES, please provide further details.

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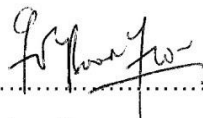
Further details

The study will be conducted with children between the ages of 9 and 11 during school hours within the school. The study is a longitudinal study in which the children at age 9 will be required to fill the survey form twice a year. They will then be required to fill the survey forms at age 10 and following that at age 11. Consent to participate will be obtained from the School Principal. All children involved in the project will be verbally advised that participation is voluntary and that they can withdraw at any time.

The children will have to fill their names and classes on the survey form. This is to ensure that survey forms are categorised according to the students' chronological year in school.

**Declaration**

I have read the Department's Code of Practice on Research Ethics and believe that my research complies fully with its precepts. I will not deviate from the methodology or reporting strategy without further permission from the Department's Research Ethics Committee.

Signed  .....

Date: 10 Feb 2011 .....

**SUBMISSIONS WITHOUT A COPY OF THE RESEARCH PROPOSAL WILL NOT BE CONSIDERED.**

Appendices

- A- Exemplar consent form
- B- Research proposal & Methods section.
- C- The Self-Regulation Questionnaires
- D – Letter to Class Teacher

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Appendix A

**Informed consent.**

Title of project: **It's Not Just About Rewards, I Am Also Interested In My Studies  
– The Effects of External Regulation on Interest In School Work**

Have you seen the presentation  
on what the research will entail?

YES/NO

Have you had an opportunity to ask  
questions and discuss the study?

YES/NO

Have you received satisfactory answers  
to all of your questions?

YES/NO

Have you received enough information  
about the study?

YES/NO

Do you consent to allowing the research to be  
conducted within your school?

YES/NO

Do you understand you are free to withdraw  
your consent;

- at any time,
- without giving a reason for your withdrawal.

YES/NO

Signed..... Date.....

Name in block capitals..... LEE - LAI LEE KIEN (Ms)

Position in the school..... Principal.

## It's Not Just About Rewards, I Am Also Interested In My Studies – A Longitudinal Measurement of Extrinsic Motivation Among Primary School Pupils

To the class teacher.

The purpose of the current research is to deepen the current understanding of the level of motivation in primary classrooms, specifically the extent to which children are motivated in their school work and suggest a goal that will improve their motivation level and hence their interest in school work. Academic literature suggests that external regulations can undermine intrinsic motivation and that behaviour from rewards contingent dependent and that shows poor maintenance and transfer once contingencies are withdrawn. However the literature adds that once internalized, external regulations can be fully transformed into self regulation and the result is self-determined extrinsic motivation.

To determine the type of extrinsic motivation in class, I propose to measure their motivation using the Academic Self-Regulation Questionnaire where the type of motivation the children have over the years in their primary school will be determined.

To ensure that the results are as robust as possible I have given a standardised set of instructions to be read prior to each task. The importance of minimising the variety of the instructions is crucial to the success of this research to have a real impact on our day to day practice. It should also be noted that the research does not identify specific classes or teachers by name, nor will it be reported to any individual connected with the school and therefore helping or priming pupils only serves to skew the results unnecessarily.

Finally I would like to thank you for your participation, I am sure this research will have a positive impact not only on your teaching but the teaching of many others too. Once the results have been collected and the final paper written up I will send both a copy of it and a shorter summary with relevant practical suggestions for the classroom borne out of my findings. This can be shared with anyone interested in the findings. Should you have any questions prior to administering the two tasks please do not hesitate to contact me on 98630 826 or [gbyeow@singnet.com.sg](mailto:gbyeow@singnet.com.sg)

Before starting the research please let the pupils know that the following tasks are part of a real scientific experiment and that they should try their best because their answers are important to the researcher.

Thank you very much

Your Sincerely



Goh Boon Yeow